



Report on the Fifth Season (2014) of the Madâ'in Sâlih Archaeological Project

Laila Nehmé, Wael Abu-Azizeh, Thomas Bauzou, Caroline Durand, Jérôme Rohmer, Ibrahim As-Sabban, Nathalie Delhopital, Khalid Alhaiti, Maher Al-Musa, Yvonne Gerber, et al.

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Laïla Nehmé (ed.)



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L. Nehmé (ed.)

With contributions by

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and the drawings of

J. Humbert and R. Douaud



Latin inscription 35004_I06, F. Villeneuve.

Paris, December 2014

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Introduction

Between the 14th January and the 16th February 2014, the archaeological project at Madâ'in Sâlih carried out its fifth excavation season at the ancient site of Hegra, a medium-sized Nabataean town on the southern border of the Nabataean kingdom and from AD 106 onwards of the Roman province of Arabia (**fig. 1**). The fourth season was undertaken in 2011, on which a complete report was presented to the excavation committee in January 2012. The 2012 and 2013 seasons were indeed study and restoration seasons and only the former was the object of a small unpublished report. Note that the 2014 season is the first one of the second four year excavation programme, for which an official agreement was signed in October 2013 between one of the project's directors, L. Nehmé, and the president of the Saudi Commission for Tourism and Antiquities, prince Sultan b. Salman b. Abdulaziz.

Nine excavation areas were selected in 2014 (**fig. 2**), five inside the Residential Area and four outside. They are presented in the following chapters under the authorship of each area supervisor, while scientific coordination was ensured by the project directors.

Inside the Residential Area, work continued in the following areas:

- **Area 35** (see F. Villeneuve's report in this volume), i.e. the so-called South-Eastern gate of the rampart, the excavation of which started in 2011 under the direction of F. Villeneuve;
- **Area 9** (see J. Rohmer's report in this volume), the excavation of which started in 2010 under the direction of Z. T. Fiema and was resumed in 2014 through the opening of a new trench under the responsibility of J. Rohmer;
- **Area 65** (see the reports of M. al-Musa, Kh. Alhaiti and M. al-Hajiri in this volume), which is the extension, southwards, of the excavations undertaken in 2003 by the Department of Antiquities of Saudi Arabia at the foot of the south-western side of the outcrop known as IGN 132. The baulks left between the squares at the end of 2003 had been removed in 2011 in order to obtain a clearer image of the area. Two trenches were thus opened south of the 2003 squares W27 and V27, respectively *loci* 65000 (M. al-Musa) and 65100 (Kh. Alhaiti) and one was opened to the west, *loci* 65200 (M. al-Hajiri);
- **Area 63** (see L. Tholbecq's report in this volume), which lies at the foot of the southern flank of outcrop IGN 132. This is a new trench, the location of which was chosen because of the presence of a large slightly curving wall which was thought to belong to the religious complex on and around IGN 132;
- **Area 60** (see L. Nehmé's report in this volume) which covers, since 2008, all the areas excavated by L. Nehmé. In 2014, following the 2010 and 2011 seasons, these *loci* numbers concerned only the area east of outcrop IGN 132. It should be reminded that a Nabataean high place was built on top of IGN 132, made of an enclosure in the middle of which a *tetrapylon* was standing over a paved platform.

Outside the Residential Area, the work concerned both the Nabataean monumental tombs and the area with *tumuli*. The 2014 season focused on the following monuments:

- **IGN 88, 97 and 103** (see N. Delhopital's report in this volume). The first two are tombs with a decorated façade which were completely emptied in 2014 because archaeological artefacts as well as human bones showed on the surface and tourists were treading on them when visiting the site; the third, IGN 103, is a simple funerary chamber (no façade) carved relatively high on the cliff. Some of

the pit tombs carved in this chamber still contained archaeological sediment and we hoped they would yield archaeological material which would help dating the chamber and, hence, give some indication as to how early they are compared to the first century AD Nabataean monumental tombs;¹

- Cairn complex **F19** in Jabal al-Khraymât (see W. Abu-Azizeh's report in this volume). This complex was chosen by W. Abu-Azizeh among the numerous ones he identified during his 2011 survey because it was composed of two elements: a tower-tomb and a structure he described as a 'wall with internal compartments'. The complete excavation of this structure aimed at clarifying its plan and at obtaining a date for at least two types of cairns.

The activities at the site also included the continuation of the restoration of the excavated areas by I. Sabhan and his team of Afghani stone-masons and Pakistani workmen (see his report in this volume). Moreover, measures of protection were taken in the South-Eastern gate to preserve the inscriptions from weathering. This includes an attempt to apply a solution made of vinyl glue, ethanol and water which did not prove to be efficient. In the end, mechanical measures of protection (sand and wooden boxes) were preferred to chemical ones. Finally, several specialists continued to study the material they are responsible for, thus contributing to our knowledge of the ancient occupation at the site. In 2014, these included:

- T. Bauzou, who succeeded C. Augé, now retired, for the study of the coins (see his report in this volume);
- C. Durand, who studied the pottery and offered the possibility to almost all archaeologists working at the site to get a regular reading of their pottery (see her report in this volume);
- J. Studer, who studied the fauna and who focused, this year, on the study of marine molluscs (see her report in this volume).

Two draughtspersons, J. Humbert for field drawings and R. Douaud for the drawing of pottery and objects, joined the team. Their work is invaluable, as shown by the quality of the drawings and plans which accompany this report. The photographs of the objects were done professionally by Y. Gayet, and this allowed for a great improvement of their quality. Logistics were taken in charge by Y. Gayet and the management of the objects which came back everyday from the field was masterly organised by M. Peillet. Finally, it should be noted that, due to health problems, C. Benech, who intended to undertake field reconnaissance and kite photos in the Residential Area, was not able to join us in 2014 and this part of the programme was postponed.

After the death of our friend F. Bernel from cancer last year, M. Peillet, who is a free-lance professional metal restorer, took over the restoration of metal objects and coins (**fig. 3**). She used mechanic methods for the objects and, for some coins only, chemical baths. Among other things, she managed to reveal the presence of incised rosettes on the external wall of the complete bronze casket discovered in 2011.

ACKNOWLEDGMENTS

As each year, the directors of the project would like to thank all the institutions and people who helped make this season a success:

- the Saudi Commission for Tourism and Antiquities in Riyadh (SCTA);
- the *Division des sciences sociales et de l'archéologie* of the *ministère des Affaires étrangères* in Paris;
- the *Ambassade de France* in Riyadh and the *Consulat général de France* in Jeddah;
- the Saudi Arabian Embassy in Paris;
- the Archaeological Museum in al-'Ulâ and its director, M. al-Mutlaq and the Madâ'in Sâlih site's director, N. al-'Anazi;

1. Excavations in 2008 in IGN 125 were not successful regarding the question of the date of these chambers, which belong to the first phase of the use of the cliffs for funerary purposes.

- the UMR 8167, *Orient & Méditerranée*, Ivry-sur-Seine;
- the UMR 7041, *Archéologie et Sciences de l'Antiquité*, Nanterre;
- the University of Paris 1;
- the *Institut français du Proche-Orient* (IFPO);
- the Simone and Cino del Duca Foundation.

We would also like to give particular thanks to Jean-Louis Laveille of the *Service de coopération et d'action culturelle* (SCAC) of the French Embassy in Riyadh and to the French Ambassador, Bertrand Besancenot, who has always been a fervent supporter of the project.

AFFILIATIONS, DIRECTORS AND PARTICIPANTS

Affiliations

The project works under the aegis of the following bodies, to which its directors are affiliated and which evaluate its work:

- the *Division des sciences sociales et de l'archéologie* of the *ministère des Affaires étrangères* in Paris;
- the UMR 8167, *Orient & Méditerranée* (Ivry-sur-Seine) and the UMR 7041, *Archéologie et Sciences de l'Antiquité* (Nanterre);
- the Saudi Commission for Tourism and Antiquities in Riyadh.

Directors and participants

The project is directed by Daifallah al-Talhi, professor at the University of Hâ'il, by Laïla Nehmé, senior researcher at the CNRS, and by François Villeneuve, professor at the University of Paris 1. F. Villeneuve and L. Nehmé stayed through the whole excavation period and D. al-Talhi came for a few days in the middle of it. Eighteen persons, whose names and roles are presented in the table below, participated in the 2014 season:

SURNAME First name	Nationality	Institutional affiliation	Role	Work on the project
ABU-AZIZEH Wael	French	IFPO	archaeologist	Cairn F19
ALHAITI Khalid	Saudi	SCTA, Riyadh	archaeologist	Area 65 (<i>loci</i> 65100)
BAUZOU Thomas	French	University of Orléans	numismatist	
DELHOPITAL Nathalie	French	AFT	archaeologist and anthropologist	Nabataean tombs, IGN 88, 97, 103
DOUAUD Rozenn	French	CNRS	droughtswoman	drawing of objects and pottery
DURAND Caroline	French	IFPO	ceramicist	study of the pottery
GAYET Yann	French	freelance	photographer	logistics and photographs of objects
AL-HAJIRI Mahmoud	Saudi	SCTA, Dammâm	archaeologist	Area 65 (<i>loci</i> 65200)
HUMBERT Jean	French	freelance	draughtsman	field drawings
AL-MUSA Maher	Saudi	SCTA, Riyadh	archaeologist	Area 65 (<i>loci</i> 65000)
NEHMÉ Laïla	French	CNRS	archaeologist	director, Area 60
PEILLET Marie	French	freelance	metal restorer	restoration of metal object and coins, management of the objects
ROHMER Jérôme	French	Post-doctoral researcher	archaeologist	Area 9
AS-SABHAN Ibrahim	Saudi	SCTA, Masmak Museum	archaeologist	restoration
STUDER Jacqueline	Swiss	Natural History Museum of Geneva	archaeozoologist	study of the fauna
AL-TALHI Daifallah	Saudi	University of Hâ'il	archaeologist	director
THOLBECQ Laurent	Belgian	Université Libre de Bruxelles	archaeologist	Area 63
VILLENEUVE François	French	professor at the University of Paris 1	archaeologist	director, Area 35, South-Eastern gate

Four participants are attached to the Saudi Commission for Tourism and Antiquities (from Dammâm: M. al-Hajiri, and from Riyadh: M. al-Musa, Kh. Alhaiti, and I. as-Sabhan),² one to the University of Hâ'il: D. al-Talhi. Eight are attached to various research institutions in France and in Europe, two of which are neither French nor Saudi (the Natural History Museum of Geneva: J. Studer, and the Université Libre de Bruxelles, L. Tholbecq). Two are affiliated to the *Institut français du Proche-Orient*, Amman branch (W. Abu-Azizeh and C. Durand), two to French universities (Paris 1, F. Villeneuve, and Orléans, T. Bauzou), and two to the CNRS (L. Nehmé and R. Douaud). Finally, three team members are freelance and one works for a French private salvage archaeology company (AFT). The team members thus come from various institutions and countries, and this creates a real dynamic and favours academic and methodological discussions.

Two Sudanese cooks provided the meals for the whole team and thirty workmen, mostly from Pakistan and recruited for the duration of the season through the al-'Ulâ museum, were divided among the various excavation areas.

FINANCING AND PARTNERSHIPS, 2014 SEASON

Financing for the project was provided by contributions from both the public and private sectors as follows:

Public Partners

- the *ministère des Affaires étrangères* (government grant);
- the *Ambassade de France* in *Riyadh* (government grant);
- the *Labex RESMED*, Paris (individual missions).
- the Saudi Arabian Embassy in Paris (visas);
- the UMR 8167, *Orient & Méditerranée* and UMR 7041, *Archéologie et Sciences de l'Antiquité* (individual missions);
- the *Institut français du Proche-Orient* (availability of personnel);
- the Saudi Commission for Tourism and Antiquities (lodging, car with driver, salary of the cooks, etc.).

Private Partners

French firms:

For the publication of the monumental tombs: 2008, OTV Île de France (Veolia Eau).

For the purchase of equipment only (not for field work): 2008 grant from Total.

Prizes

2008: the project won the Grand prize for archaeology of the Simone and Cino del Duca Foundation.

OTHER ACTIVITIES

Publications

Thanks to the systematic publication policy of the SCTA, three of our annual reports (2008, 2009 and 2010) have already been published in a printed form in the 'Series of Archaeological Refereed Studies'.³ The 2011 report should come out soon and it is hoped that this very much appreciated policy will go on

2. To whom should be added the driver Abu Yahya.

3. L. Nehmé, D. al-Talhi, F. Villeneuve (eds): *Report on the First Excavation Season at Madâ'in Sâlih, Saudi Arabia, 2008* (Hegra, 1; A Series of Archaeological Refereed Studies, 6), Riyadh, 2010; *Report on the Second Season of the Madâ'in Sâlih Archaeological Project, 2009, Saudi Arabia* (A Series of Archaeological Refereed Studies, 13), Riyadh,

with the same efficiency. Note should be made that the publication of these reports follows their uploading on the internet on the institutional web archive site of the CNRS, 'HAL-archives-ouvertes' (<http://halshs.archives-ouvertes.fr/halshs>).

Recent publications related to the work of team members, not mentioned in previous reports, include the following:

Bouchaud C., 'Exploitation végétale des oasis d'Arabie. Production, commerce et utilisation des plantes. L'exemple de Madâ'in Sâlih (Arabie Saoudite) entre le IV^e siècle av. J.-C. et le VII^e siècle apr. J.-C.', *Revue d'ethnoécologie* 4. <http://ethnoecologie.revues.org/1217> (August 2014).

Bouchaud C., Sachet I., Dal-Prà P., Delhopital N., Douaud R., Leguilloux M. forthcoming, 'Plant Jewellery and Burial Dressing in Nabataean-Roman Funerary Rituals. Evidences from Madâ'in Sâlih (Saudi Arabia)', article accepted in September 2014 in *Arabian Archaeology and Epigraphy*.

Rohmer J. & Fiema Z. T. forthcoming, 'Early Hegra: New Insights from the Excavations in Areas 2 and 9 at Madâ'in Sâlih (Saudi Arabia)', Paper presented at the international conference 'The Archaeology of North Arabia: Oases and Landscapes', Vienna, December 2013.

Rohmer J. & Charloux G. forthcoming, 'From Liḥyān to the Nabataeans: Dating the End of The Iron Age in Northwestern Arabia', *Proceedings of the Seminar for Arabian Studies* 45.

Durand C. & Gerber Y. 2014, 'The Pottery Production from Madâ'in Sâlih (Saudi Arabia) during the Nabataean Period. Preliminary Results', *Proceedings of the Seminar for Arabian Studies* 44, p. 153–168.

Lectures

L. Nehmé gave a lecture at the French consulate in Jedda, the title of which was 'The origin of the Arabic script, results from recent discoveries'.

Visits

Prince Sultan b. Salman b. Abdulaziz, President of the Saudi Commission for Tourism and Antiquities visited the Saudi-French excavations in Madâ'in Sâlih on February 1st. He was accompanied by a number of advisors, and friends. Representatives of al-'Ulâ officials were also present. Prince Sultan's plane landed on the site and he spent two hours visiting the various excavation areas, paying much attention to the work which has been done (**fig. 4**).

French Ambassador's wife, Maud Besancenot, visited the site with Saudi and French friends on February 13th. Khalil al-Muaikil, president of Hâ'il university, and Badr al-Faqîr, professor of Geography at King Saud University, also visited the excavations.

Training

At the request of Prince Sultan, L. Nehmé devoted one day to the training of a group of about ten local tourist guides who are all accredited by the SCTA to take groups of tourists around Madâ'in Sâlih. They showed a great interest in the history and archaeology of the site.

TV Documentary

A French television film company, ZED Production, received permission from the SCTA to film at the site, including the excavations, for a 90 mn documentary prepared in cooperation with US Nova TV company. The shooting team was composed of the film director, Olivier Julien and of three technicians (camera operator, sound engineer and assistant). The shooting took place during four days starting from February the 2nd (**fig. 5**). The documentary, which deals with Petra and Hegra, will be broadcasted in 2015.

2014; *Report on the Third Season of the Madâ'in Sâlih Archaeological Project, 2010, Saudi Arabia* (A Series of Refereed Studies, 23), Riyadh, 2014.

Activities outside Madâ'in Sâlih

F. Villeneuve and J. Humbert had several working sessions with A. as-Suhaibani, PhD student at the University of Paris 1, especially at the ancient site of Dadan, locally known as al-Khuraybah, where they helped him analyse the architecture of the site and draw a long section across the main buildings. The Madâ'in Sâlih Project provided A. as-Suhaibani with logistical and technical support.



Fig. 1. Map of the Nabataean Kingdom showing the location of ancient Hegra.

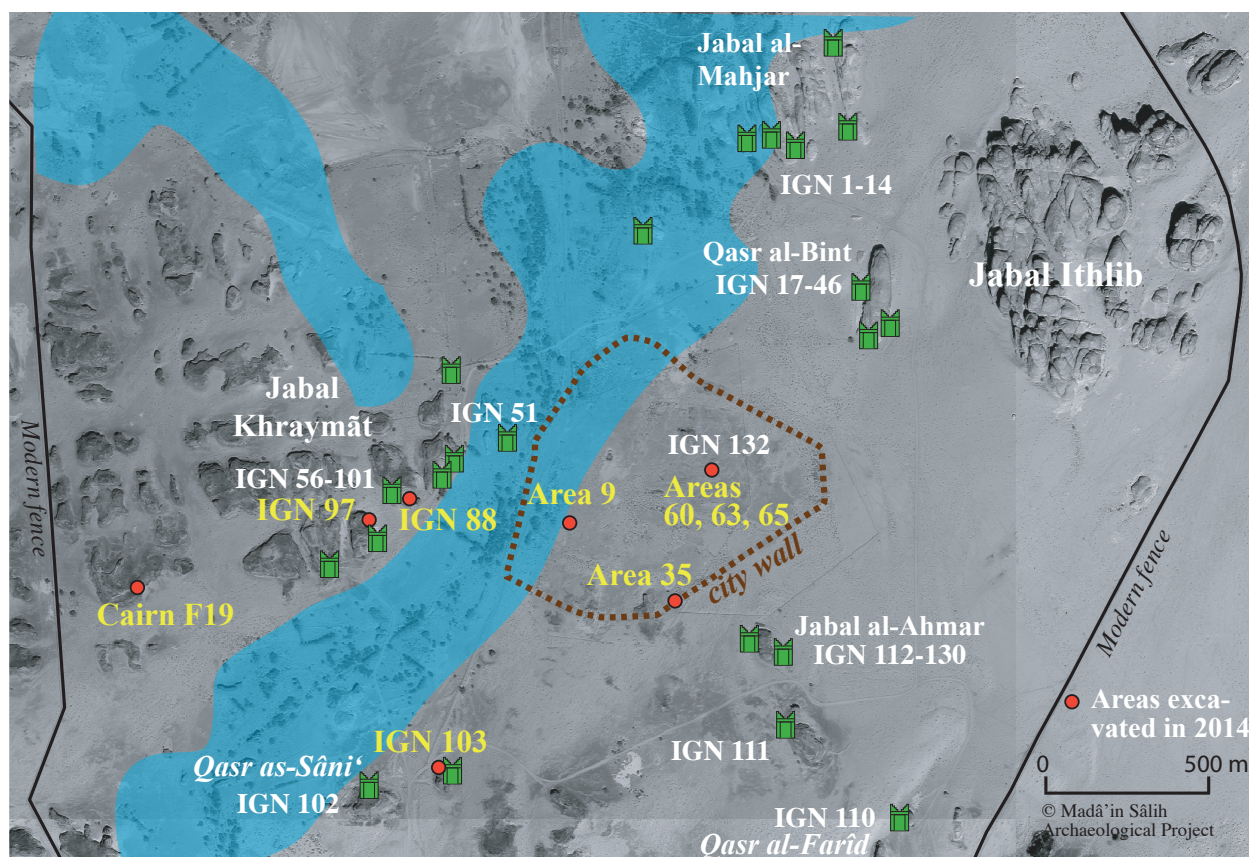


Fig. 2. Satellite view of the central part of Madâ'in Sâlih showing the location of the areas excavated in 2014.



Fig. 3. Marie Peillet in the al-'Ulâ Museum laboratory, restoring bronze casket 60681_M01.



Fig. 4. Prince Sultan b. Salman b. Abdulaziz, President of SCTA, visiting the site of Madâ'in Sâlih. From left to right: SCTA archaeologists Kh. Alhaiti and M. al-Hajiri; Prince Sultan; Director of Masmak museum I. as-Sabhan; site director N. al-‘Anazi; Madâ'in Sâlih project co-director L. Nehmé; al-‘Ulâ Museum director M. al-Mutlaq (Photo Y. Gayet).



Fig. 5. TV shooting in front of tomb IGN 100 (Photo Y. Gayet).

The Rampart and the South-Eastern Gate (Area 35).

Survey and Excavation Seasons 2011 and 2014

François VILLENEUVE (University of Paris 1)

With the collaboration of Jean Humbert and Abdulrahman al-Suhaibani.

The study of the ancient rampart at Madâ'in Sâlih/Hegra, both by survey and archaeological soundings, began when the Saudi and French Archaeological Project was launched in 2008, and has continued ever since, although by survey only during 2012 and 2013, when the results gained from 2008 to 2011 were being analysed. Some preliminary results obtained in the first seasons were published.¹ The aim here is first to provide a general description and interpretation of the whole rampart – its overall study is now complete and the final detailed report is being prepared, including the results of the various soundings; and second, to present what is known so far of the only relatively well-preserved gate in the rampart, in the south-east (Gate 2, Area 35), after two seasons of excavation (2011 and 2014). It should be borne in mind that the excavation of this gate is not yet finished, but it is hoped that fieldwork will be completed during the 2015 season.

1. GENERAL STUDY OF THE RAMPART

Only *one* rampart?

Throughout this report I shall refer to ‘the’ rampart, meaning that up to now, only one rampart, badly destroyed and almost completely hidden over several hundred metres, has been identified. Its existence had already been suspected by Jaussen and Savignac, first partially mapped by Talhi, and mapped again in much more detail but still in a very preliminary way by Nehmé *et alii*.² This is the rampart of what we might call ‘Greater Hegra’; it encloses all buildings of the Residential Area as well as, according to surface and geophysical survey, a few areas devoid of archaeological traces. Despite working on this subject for seven years, our team has not discovered any convincing traces of a smaller (earlier or later) rampart. This is somewhat surprising: as we shall see, the (large) rampart was built during the first century AD, under Nabataean domination, in order to enclose the whole of the extended city. None of the excavations conducted in the eastern parts of the Residential Area so far (Areas 2, 7, 8, 30–31, 33–35, IGN 132, see **fig. 1**) has provided evidence for occupation earlier than the second part of the first century BC. By contrast, all the excavations in the western part (Areas 1, 9, and 32, though the evidence there is not so clear) reached earlier levels (¹⁴C dates covering a range between the fifth and third centuries BC, depending on the locations). Thus the hypothesis of a pre-Nabataean Hegra located within the small western half of the ‘Residential Area’, near the wadi and the wells, is strong. One would expect an early rampart to be associated with the early town (unless it was not fortified, though this would be unusual), but so far we have not found it.

1. VILLENEUVE 2010; 2014.

2. JAUSSEN & SAVIGNAC 1909–1914, I: 132; AL-TALHI 2000: 270, map 3.1; NEHMÉ *et alii* 2006: 106, fig. 68.

Methodology

For the study of the rampart, two methods were used: one was the systematic survey and measurements of all traces of the rampart and elements adjacent to it (both inside and outside) using earlier documents, aerial photographs, satellite images, geophysics, and a very accurate field walking and topographical survey. The other was to focus on seven areas (**fig. 1**) selected on the basis of their potential (Areas 30 and 31) or exceptional interest (Areas 32–36), using larger-scale drawings and making frequent surface collections of artefacts (sherds, coins, etc.), with occasional excavation. Starting from the north and progressing clockwise, these are:

- Area 32, the so-called ‘North-West Tell’, a low clayish eminence at the northern end of the Residential Area; soundings were made there on two locations in 2008 and 2009;³
- Area 33, near the rocky mushroom-shaped outcrop locally called Marbat al-Hisân, the location of a ruined gate; extensive excavations on very thin and disturbed traces directly on the bedrock were carried out in 2009 and 2010;⁴
- Area 31, a segment of foundations and first courses of the eastern rampart, and the base of a bastion, excavated in 2008;⁵
- Area 30, a spot on the south-eastern rampart, where recent erosion provided the opportunity, in 2008, to re-examine a vertical section at one end of Talhi’s ‘Eastern trench’ of the late 1980s;⁶
- Area 35, near the south-eastern limit of the city, an area overlooked from the south-west by the sandstone outcrop ‘Hill A’ where surface survey led us to suppose a gate. The latter was excavated in 2011 and 2014 (excavation still in progress) and more details will be provided in the second part of this report;
- Area 34, a large area⁷ on the southern part of the rampart, overlooked from the south-east by ‘Hill B’, where the density of the remains of walls on the ground and their unusual layout and materials led to a series of dedicated surface surveys and topographical and architectural drawings undertaken between 2009 and 2013;
- Area 36, an area crossed by the modern western fence of the Residential Area and located on the bank of the wadi, where regular and very worn traces of walls suggest the presence of a large building on the rampart. A detailed map of this particular area was drawn between 2011 and 2013.

The results are presented in figures 2–3. **Figure 2** shows the remains of the rampart (both on the surface and in soundings) or those features considered to be elements of, or connected to, it, including the distribution of melted mudbrick along the curtain walls, which contributed to their identification. To avoid confusion, the remains of archaeological features (buildings, streets, wells, etc.) *intra muros* are not shown, but in order to provide an appropriate context in respect of the current landscape, the Hijâz railway and the two modern metallic fences of the Residential Area are visible; the rocky hills and the wadi to the west of the city are also shown in order to render the layout understandable in respect of the ‘natural’ landscape. **Figure 3** is the proposed reconstruction of the complete rampart, including the rocky outcrops and wadi but without the modern features. It is neither an ‘artist’s view’ nor an imaginary or probable map, but the result of logical deductions made from the archaeological features presented in figure 2. The few doubtful elements are marked with ‘?’.

3. VILLENEUVE 2010: 164–171 and 180–188, figs 16–29; 2014: 128–130 and 133–137, figs 3–10.

4. Preliminary indications in VILLENEUVE 2014: 130–131 and 138, figs 11–12.

5. VILLENEUVE 2010: 157–164 and 175–180, figs 3–15; additions in VILLENEUVE 2014: 128 and 132 fig. 2.

6. VILLENEUVE 2010: 156–157 and 174, fig. 2.

7. Preliminary elements in VILLENEUVE 2014: 131, already mentioning the hypothesis of a military camp.

Layout and general measurements

Compared with earlier research, the amount of information gained has greatly increased. For example, the 1980–1990 Saudi excavations discovered only one third (east part) of the rampart while it is now identified in full and in detail; the French excavations in the 2000s did not locate the wall or any gate on the western side of the city, and mentioned only thirteen towers, while secure evidence has been obtained for the western wall (though widely scattered and damaged due to destruction by the wadi, railway, and modern fences). Four or five gates and thirty-eight towers have been located (most are full towers, that is bastions), and it has been established that bastions (quite evenly spaced – *c.* 35 m apart) are present everywhere where elements of a curtain wall are visible on the ground. This enabled the reconstruction of eighty-one bastions and towers (fig. 3).

Some quantitative figures should be given: the total length of the Hegra rampart is 2937 m and it encloses a 52.5 ha city. The wall has an average thickness of 2.25 m, which is also close to its actual thickness on most parts of the circuit, while in some areas (part 1 near Hill B, and part 4) it is much narrower (1.30–1.50 m) and in others (North-West Tell and adjacent flat area called *qâ'* to its south-east) much thicker (3.70–3.90 m). The bastions – projections perpendicular to the curtain walls and always outside the wall – are generally *c.* 4 m long (along the curtain wall) and 3.50 m wide.

As shown in figure 2, the rampart consisted of nine straight parts, of varying lengths, numbered 1 to 9 counter-clockwise, starting from the south-west angle. The joint between each part is always a rounded angle (evidently to avoid the weakness of pointed angles in mudbrick masonry). Consequently, the general layout does not resemble any geometrical design. It bears no relation to Roman-type fortifications, which are always characterised by a more or less rectangular layout, nor to Hellenistic Greek fortifications and their citadels, with sharp angles and frequent ‘bayonet’-like features. It looks much more like the roundish or oval-shaped ramparts common in the Middle East in the second and first millennia BC and like circuits following the topography, built of consecutive parts similar to the (probably) Hellenistic ‘Western enclosure’ at Dûmat al-Jandal⁸ in the Saudi Arabian Jawf.

Building materials and techniques

The Hegra rampart is generally built of mudbricks, with the exception of the bastions, almost all of which have stone foundations, and of the gates, which not only had stone foundations but also – using Gate 2 as an example – had a few courses built of stones, at least on some walls. In only two areas are there continuous stone foundations for the curtain walls: the short ‘part 4’ on the eastern side, and the south-eastern end of ‘part 1’ in the south-west (Area 34). These are also two locations where the rampart is at its minimum thickness (1.30–1.50 m). By contrast, where no stone is used (part 6 in the north-north-east, and part 7 in the north-north-west) it is at its thickest (up to 3.90 m). Stones are occasionally present in the foundations or lower parts of the walls and along very short lengths (parts 3, 5, and 9) but this is very unusual. This might have happened when the builders encountered earlier stone buildings (or ruins), which they dismantled and incorporated into the lower masonry of the curtain walls. These buildings might have been tombs of the pre-rampart town. The stone foundations of the rampart in Area 34 can be explained by the presence of a probable military building set against the rampart (see below). There is no definitive explanation for the stone foundations in part 4, but the soundings in Area 31 have shown that many of the stones were reused. It is therefore possible that an earlier stone building was located where the ‘East dune’ now stands. This dune is by far the highest and largest dune in Hegra *intra muros*.⁹ All soundings have shown that the

8. CHARLOUX & LORETO 2013: 54–55.

9. The dune also requires explanation; so far, however, short but deep excavations in order to obtain sand for restoration purposes have only uncovered pure sand.

builders never tried to reach the bedrock to lay the foundations, which are either on sand or on silt, and the most common system is mudbrick foundation courses (the same as for upper courses), laid directly on sand. I do not consider it possible, for the moment, to estimate the original height of the rampart. Where excavations took place, the preserved height varies from a few centimetres to 1.50 m (exceptionally in parts of Area 35); outside the excavated places, it varies from nothing (the location of the curtain wall and bastions is then only visible by the slight contrast in colour with the adjacent surface and by what remains of the stone foundations of the bastions) to a maximum of 0.5 m (part 7, and south-west end of part 3 on the slope of Hill B). The poor quality of the evidence, as well as the extreme variability in thickness of the rampart (1.30–3.90 m) does not allow for any serious archaeological estimation of the original height. The extensive destruction of the rampart (as well as of the Residential Area) raises questions: since the rampart's height was obviously not lower than an absolute minimum of 3 m, and was perhaps much higher, and considering its thickness in some parts, it does not seem possible that this huge volume disappeared, or was destroyed, simply through erosion – especially if we compare it with the mudbrick rampart of Taymâ', 250 km to the north-east and located in similar climatic conditions, which is much earlier and is still preserved at a height of several metres. We must therefore suppose that a large amount of the mudbricks from the Hegra rampart were removed for reuse within the Residential Area, possibly after the rampart was abandoned, and in other places after Hegra was abandoned.

Whatever the height of the rampart was, it is clear that its construction process necessitated the temporary accumulation of large heaps of clay and of mudbricks. These have in the main disappeared, but I consider that, at its base, the wide and low 'North-West Tell' is probably a clay heap remaining from the construction process: the buildings of the tell (probably military: a massive rampart with orthogonal and parallel walls abutting it, visible in sounding 32100, and continuing with the same orientation in sounding 32000 some distance away)¹⁰ were erected over a barren clay platform, 80 cm thick, itself standing on the perfectly flat hard clayish surface of the surrounding *qâ'*. The (clay) remains of the building process of the rampart were gathered *in situ* to erect a platform adapted to the needs of a military quarter monitoring the rampart at its northern extremity and the northern part of the city, thus keeping an empty zone (*qâ'* to the south of the 'tell') between that quarter and the dwellings.

Relations to the dwellings

One should now consider the relationship of the rampart to the dwellings of the Residential Area and to the physical features of this central area of Madâ'in Sâlih. There are no buildings abutting the outside of the rampart nor are there traces of any other buildings next to but not abutting it. The nearest features are three of the rock-cut necropoleis: Jabal Khaymât to the west (*c.* 250 m away but some closer, such as IGN 51, *c.* 100 m away), Qasr al-Bint to the north (at least 300 m away), Jabal al-Ahmar to the south-east (250 m), and a very few known built structures (later dismantled) excavated by L. Nehmé in 2009:¹¹ the possible tomb QB6 (250 m to the north of the rampart), and two unidentified structures, Ith105 (350 m to the east, scattered architectural blocks including drums) and Ith68 (900 m to the north-east). This is not surprising, as the rampart would have been less efficient had it been surrounded by numerous buildings. It is clear, however, that there was an area of permanent human activity near the rampart to the west, and mainly to the north-west due to the presence of the wadi and the wells and thus of part of the ancient oasis.

With the help of the geophysical survey, it is also possible to conclude that *inside* the rampart, there were no buildings in contact with it or close to it. Evidently, the picture is quite different from that of the outside, since the distance from the curtain walls to the nearest buildings varies from *c.* 10 m (west of the Hijâz railway) to tens of metres (in the eastern part of the Residential Area within the rough triangle formed by

10. VILLENEUVE 2014: 134, fig. 3.

11. NEHMÉ 2014.

parts 5 (south-eastern end), 4, and 3 (north-eastern end), which has relatively few buildings). There are plenty of reasons why there was a certain distance between rampart and dwellings (security of rampart and dwellings, ease of circulation along the curtain walls, etc.), although this is not a strict rule of siege warfare. What it tells us, first and foremost, is that there was not sufficient demographic pressure *after* the completion of the rampart for buildings to be erected against it.

There are two exceptions to the absence of contact between the curtain walls and the buildings inside the city. These are the North-West Tell and Area 34, where a large series of buildings, apparently forming one unit, abuts the eastern end of part 1 of the rampart and Hill B (figs 2–3, 6).

Landmarks

Turning to the relationship of the rampart to the physical features of the site, inside the enclosed area, there are only two major features, sandstone outcrops ‘Hill IGN 131’ and ‘Hill IGN 132’. They apparently played no military role at any time. IGN 132 and its surroundings, under excavation since 2011, is the centre of a cultic place.¹² IGN 131, which still needs to be explored, was quite probably another one, or part of the same. It is normal for the rampart to enclose them – they are important aspects of urban life – and keep them, if not in the very centre, at least within the enclosing perimeter. The only other significant features of the landscape in the central area of the plain of Mada’in Sâlih are the following: the shallow wadi running to the west; the very flat clayish area (*qâ’*) located around the North-West Tell (roughly between modern fences 1 and 2, see fig. 2); the small, mushroom-like outcrop, Marbat al-Hisân; the large hills ‘A’ and ‘B’ to the south; and the ‘East Dune’, assuming it was there when the rampart was built. The builders took all these elements into consideration when deciding on the layout, which, together with the decision to proceed in straight segments (as at Dûmat al-Jandal), led to a final layout which is neither circular nor regularly polygonal. The Marbat al-Hisân undoubtedly provided a landmark: it is located between the two central cultic hills (fig. 2, IGN 131–132) and the Qasr al-Bint massif, which was used as early as the early first century AD as the location for a high-status necropolis. Because of its shape (narrow at the bottom, wide at the top) it was impossible to incorporate it into the rampart, and its height (7 m) meant that it would have been dangerous to keep it outside the rampart. That is why part 5 of the rampart runs just to the north of it. Moreover, the Marbat being a good landmark, the northern gate G3 (fig. 3) was located just beside it. The north-western *qâ’* probably posed a technical problem for the builders: as a frequently flooded area, it was not a suitable place for buildings (in fact, no buildings were erected there, except for the rampart and the North-West Tell buildings), but as a perfectly flat and very hard surface, it offered attackers the only suitable place without sand or bushes from which to attack the city (on horse- or camelback, for example). This could have played a role in the decision to ‘build’ the bottom platform of the North-West Tell in the centre of the *qâ’* and to abut parts 6 and 7 of the rampart to this platform. In other words, the decision was made to build an artificial hill in the north similar to the natural southern hills A and B.

In the west, parts 8 and 9 of the rampart follow the wadi’s eastern edge, while keeping the wadi itself outside the city.

To the south, the large and high rocky hills A and B (figs 2–3), only 150 m apart, provided not only obvious landmarks but also excellent support for the rampart. From a siege point of view, keeping both hills or even one of them outside the wall would have been nonsense, while integrating them ensured good monitoring positions for the defenders as well as physical support for the rampart itself. The situation of the rampart in relation to Hills B and A is quite different, however. Hill B, 18 m high with steep slopes, had its summit mostly dynamited by quarrying apparently in the early twentieth century. What remains on the top, however (fig. 6, bottom right), is sufficient to suggest the presence of a citadel building,¹³ quite possibly earlier than

12. NEHMÉ 2012.

13. Already suggested by JAUSSEN & SAVIGNAC 1909–1914, I: 132.

the rampart as its walls are the only ones in the Residential Area of Madâ'in Sâlih to be built in stone, preserved up to c. 1–1.50 m. The rampart itself abuts the southern cliff of the hill to the south-west and south-east, resulting in the southern cliff serving as part of the rampart, along a stretch of almost 100 m facing south-south-west, then south-south-east.

Hill A (**fig. 4**) differs in many respects from Hill B, not just because it is lower (795 m and 800 m above sea level respectively). It is a long narrow sandstone outcrop oriented north-south. It consists of two superimposed strata of sandstone, where erosion formed two rocky plateaus with no soil on them. The lower one (c. 791 m asl) points south-south-east and extends 70 m beyond the rampart to the south. The upper plateau overhangs the lower one by 4 m. It extends over 65 m north and north-west inside the enclosed city, and its cliffs become more vertical the further north they are. The southern half of its surface area is wide (20 to 30 m east-west), but its northern one is very narrow (3.5 to 9 m) and it overhangs the city to the north by 11 m. Strangely enough, the broad and very flat surface of the upper plateau (still in Hill A) does not show any traces of military buildings. Moreover, the rampart's builders, instead of building it against the 4 m-high southern cliff of Hill A, decided to build it 4 m away (**fig. 4**, bottom). The top and slopes (or cliffs) have long been considered by archaeologists – including our team – to consist of nothing but pure rock, and to contain no information except for a few Thamudic graffiti on the north-eastern cliff, thus inferring that this spectacular position overlooking Hegra was not taken advantage of militarily. A more careful examination, initiated in 2010, resulted in the complete topographical and archaeological layout of the area in 2013 (see **fig. 4**). Apart from the large ancient quarries located to the north-west, a series of carefully cut water channels on the surface, and a heap of scattered stones (grey dots in **fig. 4**) that could be the ruins of a monitoring tower (or some other building), the evidence points towards an open-air cultic high place, comparable with Petra high places or to some degree with Hill IGN 132 in Hegra. There are three rock-cut stairways (with a series of Nabataean and Thamudic graffiti and animal drawings along one of them), a shallow square rock-cut basin – probably a foot-bath – at the arrival of one of the north-eastern stairways to the top of the plateau, and a half crow-step in the south-east. Lastly and most striking is a narrow rock-cut groove running along the whole of the edge of the upper plateau and following its natural contour. It is c. 20 cm wide (although the width varies) and 20 to 50 cm deep, and is sometimes stepped in section. It is interrupted only once, along a stretch 2.20 m long towards the north, exactly above the point where the cliff is quite vertical and where it overhangs the city from the greatest height, exactly opposite Hill IGN 131. It is difficult to attach a practical use to this groove, but a symbolic, sacral, function – as for the grooves around the top of Hill IGN 132, which were used to insert the stones forming the sacred enclosure around the platform¹⁴ – seems probable. If this is correct, the 2 m-long break in the groove towards the north is undoubtedly significant – possibly a sacrificial ritual consisting in throwing things (or people/animals?) down in front of the city. Added to this, the fact that at certain times of the year (early February) and of the day (mid-morning) the shape of the northern cliff (**fig. 5**) clearly resembles a human (or divine) profile, the conclusion that Hill A together with Hills IGN 131 and 132 formed a trio of sacred high places seems plausible.

Returning to the rampart, it is now clear why (apparently) no military use was made of Hill A and why part 2 of the rampart was built at a short distance from the hill and not against it: it would not have been possible because the hill was probably sacred.

As is clearly visible on figures 2 and 3, part 3 of the rampart, which is perfectly rectilinear, is the longest (630 m). At one end is Hill A. What, if anything, was at the other end? There is no rocky hill there. The topography of Madâ'in Sâlih immediately east of Hill IGN 132 is flat. Sparse remains of city dwellings were observed by geophysical survey in 2012,¹⁵ up to at least 100 m to the west of the short north-south stretch or part 4 of the rampart. Since the geophysical survey did not extend further east, it is not possible

14. NEHMÉ 2012: 155.

15. C. BENECH, in *Madâ'in Sâlih. Report on the 2012 Season*, Internal Report, p. 8 and 31, **fig. 16**. NB: the caption should read 'Eastern sector', not 'Around IGN 131'.

to determine whether the rampart's builders were obliged to go as far east as the current location of part 4 *in order* to enclose all the dwellings in that eastern area. But viewed from the surface (field walking survey or aerial photographs) this does not seem to be the case. Thus, it is reasonable to assume that the East Dune (65 m long, 12–25 m wide, and 4 m high) was there when the rampart was built and that, for the same reason as the other major landscape features, it was included within the rampart and marked the north-eastern end of its part 3. A small south–north stretch (part 4, 174 m) was thus necessary in order to avoid a (weak) sharp angle at the East Dune if part 3 had been extended directly from the East Dune to Marbat al-Hisân.

This is all speculative, however, and it also contradicts the idea expressed above that the stones used in the foundations of the curtain wall in part 4 were possibly reused from an earlier building which stood at the location of the East Dune.

Military positions?

The layout of the rampart having been established, we can turn to the military positions located on it and to the gates (there is apparently no military camp or fortress among the dwellings of the Residential Area and nothing similar is known outside the city, except for clusters of soldiers' graffiti near the pass between Jabal Ithlib West and East, a few kilometres to the north-east of the city). As is clearly shown in **fig. 3**, there are four possible or plausible locations – quite evenly spaced – for garrisons or at least some kind of permanent monitoring activity: the East Dune, the North-West Tell (Area 32), Area 36, and Area 34 in the south.

The **East Dune** is by far the most hypothetical. As mentioned above, no building was found there (though further excavation is required) and the question of the chronological relation between the dune and the rampart is not yet solved. If the dune was there when the rampart was built, however, we might speculate that the top of it was used as a monitoring area, but not if the rampart was significantly higher than the dune (4 m).

Although the two large soundings opened in 2008 and 2009 on the North-West Tell did not uncover evidence of 'military' materials (weapons, etc.), this is not significant because the area was probably reused in the fourth century AD for domestic purposes.¹⁶ This obviously led to the reuse and adaptation of all earlier metal objects or fragments. What does suggest a military function (barracks), however, is first, that the buildings unearthed in soundings 32000–32100 on the Tell lie at a distance from the dwellings (the flat empty area [*qâ*] extends over tens of metres to the south before one reaches the Residential Area); second, the orthogonal layout of the walls (both to each other and in relation to part 6 of the rampart excavated there); third, as detailed above, the exceptional feature (two occurrences in Mada'in Salih, the other one being in Area 34) of the walls of the buildings directly abutting the rampart; and lastly, the artificially – if only slightly – elevated position of the platform. Taken as a whole, one could suggest that the Tell was built, or more exactly left as it was (if it is indeed a heap of clay used to make mudbricks for the rampart), in order for barracks to be built on the top. Based on the walls in the two soundings and the general shape of the tell, an irregular orthogonal layout represented on figure 3 is suggested for these barracks.

Area 36 is a more doubtful location for a garrison for several reasons: it has not yet been excavated; that part of the site is extremely eroded; there is no height (either artificial or natural); finally erosion by an eastern diversion of the wadi prevents us from knowing for certain whether a building once stood here against the rampart, as in Areas 32 and 34, although this is quite plausible. An unusually long north-south wall (c. 40 m) with stone foundations is abutted, at regular intervals, by a series of orthogonal walls. About 30 m to the west, it is paralleled by another long north-south wall built of extremely worn mudbrick. Figure 3 shows a tentative reconstruction of the whole complex as a caravanserai-like slightly irregular building, which could indeed have served either as a caravanserai or as barracks for a garrison. The area is near the wadi, the trees of the ancient oasis, and the wells. It is thus favourable for a caravanserai, and the military supervision of such an area would have been normal.

16. VILLENEUVE 2010: 172.

Area 34 (figs 6–7) is much larger and more clearly defined. Although it is not yet excavated (excavations are due to start in 2015), the relatively good preservation of part of the stone foundations, the large heaps of melted mudbrick, the rock-cut elements, and numerous artefacts and fragments found on the surface make it potentially one of the most important archaeological areas in Madâ'in Sâlih. It has allowed us to establish a detailed archaeological map (**fig. 6**) and propose a possible reconstruction (**fig. 7**). It is important to stress, however, that the suggested reconstruction, although strictly based on the remains visible on the ground and circulation and access requirements, does not represent the degree of accuracy and security shown in figure 3 for the rampart as a whole. The reconstruction in figure 7 should be used as a tool for understanding what is depicted on figure 6 and will serve as a guide for future excavations.

Area 34 is the rocky Hill B and the area adjacent to it to the west. The particular and intriguing aspect of this part of Mada'in Salih was observed by Jaussen and Savignac, who also mentioned that the famous sundial with a short inscription in Nabataean and kept in Istanbul's Archaeological Museum, was discovered there.¹⁷ What is unusual and first drew our attention in 2009 is the following: the abundance of melted mudbrick; traces of stone foundations covering a large area and arranged in long rows (often two parallel rows) and small square rooms; the direct connection of these buildings with the rampart wall – the rampart itself is unusual: continuous stone foundations, curious and oddly spaced bastions, (**fig. 6**: T2 to T5, T35 and T36 on either sides of a small gate, G1); finally the fact that the whole abuts Hill B. All this differs completely from the normal dwellings in the Residential Area. The whole complex stretches 130 m towards west-north-west from the summit of Hill B and over 60 m north-north-east from part 1 of the rampart.

The hypothesis of a military settlement for Area 34 is based upon the following:

- the strategic location, overlooking not only the landscape surrounding Hegra to the south but the city itself to the north and the wadi to the west. The plateau and its slopes in Area 34 offer the only large area in Mada'in Salih near the city centre in this strategic position, while Hill B provides a perfect monitoring position in all directions;
- the location along part of the southern rampart: thus towards the border of the Nabataean kingdom (later Roman *Provincia Arabia*), generally assumed to be located between Hegra and Dadan – Mada'in Salih and al-'Ulâ – probably at the location of the cliffs Maq'ad al-jundi and Qubûr al-jundi. This broader strategic factor should not be overemphasised, however: visibility from the plateau in Area 34 towards the southern plain is not very good, blocked as it is by numerous large and high sandstone outcrops (the main one is Jabal as-Sâni', which is very close), while as a vantage point for monitoring the city it is perfect. If the settlement in Area 34 is a military camp, it would have been used more efficiently by an occupying army as an observation post to monitor a newly conquered city, for example, than as a defensive position to protect a city;
- the general layout: an approximately rectangular area against the rampart, with a large courtyard in the centre and rows of rooms on four sides. What seems characteristic of a Roman, or Roman-like, military camp is the fact that at least two rows (south and east and possibly north as well) are double, with no side doors, which implies that all the units are two-room deep, a well-known layout in Roman cavalry units, for example (the first room for the horse, and the second room, at the back, for the rider)¹⁸ – a strong hypothesis in this case as at least two mangers are visible (see e.g. centre of **fig. 6** east row, west rooms, second room from the south, between walls 34041 and 34042).

All the buildings were constructed of mudbricks laid on stone foundations. This is true for the main quadrangle, which is the most obvious component of the camp, and it is also the case for the probable annexes to the north-east, long rooms (storerooms?) located along the northern edge of Hill B (area of walls 34072–34075). As already mentioned, a citadel was built on Hill B (the cliffs of which were cut in some

17. JAUSSEN & SAVIGNAC 1909–1914, I: 131 and 303, inscription JSNab 172bis; HEALEY 1989.

18. LENOIR 2011: figs 28, 58, 70–72, 103–104.

areas in order to make them more even and vertical; see **fig. 6**, 34084). Its reconstructed layout shown on figure 7 is highly speculative due to the almost complete destruction of the top of the hill by dynamite-quarrying in the (early?) twentieth century and to the presence of retaining walls, which are not easy to distinguish from the main architectural features of the citadel, or what is left of it (northern wall). The building method consisting only of stone courses is, however, quite different from that of the quadrangular camp and the storerooms. Thus, one might suppose that another citadel, built earlier than the rampart and the camp, was incorporated into the camp when it was built. There was a connection – a walkway leading to a rock-cut stairway (**fig. 6**, 34083 and arrows; **fig. 7**, arrows in same location) – between the camp and the citadel, via the ‘storerooms’ area. Rock cutting was also carried out to create a small unroofed chamber on the north-western slope of Hill B (**fig. 6**, 34071), which we suggest is the location of a rock-cut cistern or well mouth. A well-preserved segment of a ceramic water-pipe (**fig. 8**) lies on the surface, only 10 m to the north-east of the entrance to that chamber, at the north-east angle of wall 35074. It is evidence of an organised hydraulic system clearly associated to the ‘camp’, possibly for washing facilities.

To conclude this short presentation of Area 34, a few other details should be mentioned. Near the centre of the courtyard, item 34050 is the ruin of a very small chamber (?), 4 x 4 m, possibly with roofing supported by a column or pillar of which the square base (40 x 40 cm) is still *in situ*. This could have been where the standard of the garrison was kept. Between that and the eastern row of buildings are two column drums of white sandstone (60 cm in diameter) apparently *in situ*, 3.40 m from each other. Another drum and a worn pilaster-capital (or base?) lay nearby. It is clear that a decorated façade or portico, separated from the northern row of buildings and thus facing the city, stood there, but it was not possible, on the basis of the elements mentioned above, to propose a reconstruction of it in figure 7. They might indicate a small palace for the *strategos*, or something similar.

Another problematic issue is the system of communication – entrances and exits – of the settlement. On the inside of the southern wall, which is also the eastern end of part 1 of the rampart, there was very clearly a gate (**fig. 6**, G1), c. 2.20 m wide, flanked by small bastions T35 and T36. This was an exit towards the countryside to the south. As can be seen in figure 6, the location of other passages or gates is extremely difficult to establish. It is our belief that there was a passageway (probably with a gate) leading from the main quadrangle towards the hill and towards the city. On figure 7, it is proposed to locate these ‘gates’ where no traces of wall are visible and where the slope makes it reasonable (hence, not to the west). In addition, the suggested location of the north-western gate, towards the city, is based on the presence nearby of a rock-cut area to the north-west (**fig. 6**, 34020). Being rectangular in layout with a level floor and internal subdivisions, and containing a number of fragments of basalt grinding stones, it could have been an annexe of the camp for the preparation of food (involving flour). The fragments include one half of a low portable circular grinding stone, a well-known artefact in the Roman world (**fig. 9**).

Many of the items mentioned above (two-room layout, ceramic pipe, grinding stone) point towards a Roman dating of the camp (early second century AD) but this does not seem plausible. Firstly, the architecture is too irregular for the standards of the Roman army, even auxiliary forces, whatever the period and the location. Secondly, the material collected on the surface provided chronologically mixed pottery: late Hellenistic, late first century BC, first century AD (all pre-Roman), second century AD, and possibly early third century.¹⁹ If the camp was built by the Romans there would not have been a lot of Nabataean period pottery, since before being military, the area, including all the areas close to the rampart, was not inhabited. More persuasive is the evidence of the coins:²⁰ among the seventeen coins found on the surface in Area 34, only two are Roman (not from the second century – one Severan, one Constantinian), while five are Nabataean (predominantly struck in the early years of Aretas IV) and nine are of the so-called ‘Athena/owl’

19. C. DURAND & Y. GERBER, Research files of the Madâ'in Sâlih Saudi-French team.

20. C. AUGÉ & T. BAUZOU, Research files of the Madâ'in Sâlih Saudi-French team.

type, presumed to be local and dated to the second and first centuries BC. Since Roman troops were paid in coins and used them, it is not possible to reconcile this with the absence of any Roman second-century coins on the surface – rich in debris – of a second-century Roman camp. Therefore, it is probable that Area 34 was a Nabataean military camp monitoring the city of Hegra, and that the area continued to be used in the Roman period, although possibly not as a military camp. This is, of course, a preliminary hypothesis, given prior to excavations.

Gates

As shown in figure 3, it is proposed that there were four or five gates in the rampart. Gates 1 to 3 are certain, Gate 4 is doubtful, and the existence of Gate 5 is almost certain but its position is not.

Gate G1 (figs 3, 6–7) was associated with Area 34. It is clearly a gate to the camp, and not a city gate. This assertion is based on its narrow width, a little over 2 m, and on the topography: it is on top of a slope ascending from the south, and – if viewed from the city, rather than from the immediate vicinity of the camp – also from the north. Its function is to provide the garrison with direct access without being obliged to use the city gates, and to allow quick access outside the southern rampart within the context of defensive activities.

By contrast, Gate G2 (in Area 35) stands on its own in the rampart, relatively isolated from any buildings. It is wide, flanked by large towers, and positioned with easy access to and from the central parts of the city to and from the south-east, where we may suppose the presence of a major caravan road from al-‘Ulâ and Maq‘ad al-Jundi, which ran towards the pass between Jabal Ithlib West and Jabal Ithlib East, and Mabrak an-Nâqah. The survey and the two first seasons of excavations on Gate 2 are presented below.

Gate 3 is reasonably located in the middle of the north-eastern rampart (parts 5 and 6), between the central dwellings and Hills IGN 131 and 132 on the one hand and the main rock-cut necropolis at Qasr al-Bint on the other hand, immediately adjacent to the impressive landmark provided by Marbat al-Hisân, the side of which shows Nabataean graffiti and one in Greek written by a woman who lived in a distant village (*Adamêla*)²¹ – clearly signs of a gateway area. The gate is, however, mostly destroyed, evidently by the constant flow of movement over the centuries in that natural south–north passageway, notably in the twentieth century (until the erection of the modern fence) by motorised traffic on a south–north track that runs at this point. This resulted not only in the destruction of any stratigraphy and layer of soil or foundations (the stones used to build the gate are, at best, preserved over a thickness of a few centimetres), but also of the most basic elements of the layout. **Figure 10**, sounding 33200, shows a gateway flanked by two quadrangular towers of which two segments of the north-south walls (stone foundations) are preserved (the supposed western wall of the western tower T38 and the eastern wall of the eastern tower T37). The towers were probably *c.* 5 m square, but the width of the gateway is uncertain, while the remains of the adjacent curtain walls (soundings 33000 and 33100) are disturbed and irregular.

The location of Gate G4 is speculative, resulting from the difficulty of determining the join between parts 5 and 6 of the rampart in the flat area known as the northern *qâ‘*. For reasons that will be fully explained in the final report, the inevitable conclusion was reached that there is a short north-south projection, at the location of G4 (**fig. 3**), between the two parts of the rampart, oriented roughly south-east/north-west. Since Area 32 – the North-West Tell – is probably a military position – like Area 34 – it follows that it also required an entry and exit point through the rampart. A gate was therefore located on the short north-south projection, flanked by two mudbrick towers or bastions which are still visible as two very low mud mounds, numbered 32200. Hegra was also obviously in need of a west gateway in the rampart, towards the oasis. On figure 3 it is proposed that a gate, G5, was located in part 9 of the rampart, in the only spot where a few stones *in situ* testify to the presence of one or two towers flanking a gate.

21. VILLENEUVE 2014: 130–131 and 138, figs 11–12.

Chronology

Relative chronology: the rampart was built in one phase, the bastions were added after the building of the curtain walls, and there is a lot of evidence of various repairs on the curtain walls.

The assumption that the construction of the rampart was the result of a single decision, followed by its execution within a limited span of time (i.e. not in different phases), is deduced from all the evidence detailed above, in particular from the choices made and applied according to the topography. Nowhere, either in survey or in soundings, was an earlier (or later) stretch of curtain wall, bastion, or even the smallest modification of the layout detected. The considerable variations in the thickness of the walls and of the materials (the occasional presence of stone foundations) have nothing to do with different phases. They are undoubtedly the result of the fact that building such a long (almost 3 km) rampart required several teams of workers, who did not use the same techniques and measurements – a probable indication that there was a need/instruction to build the whole of the rampart quickly. The available materials and requirements were not the same everywhere: as suggested above, stone foundations were used at places where stones were available from earlier buildings – soundings in Area 31 showed that most of the stones at the bottom of the curtain wall were reused²² – or where rocky ground or possibly military prescriptions related to the camp led to the construction of such foundations (Area 34). While the absence of any stone in the masonry in the northern *qâ'* and in the North-West Tell – areas lacking any stone and rock – is not surprising, neither is the extreme thickness of the rampart (almost 4 m) in that particular area in order to strengthen the rampart against regular flooding of the *qâ'* and perhaps to attacks from the north.

The bastions were added after the completion of the curtain walls – probably some time later and not within a second phase of the same building process – and this is evidenced by three things. First, wherever this can be observed in survey or in soundings, the ruins of the bastions are not bound to the curtain walls. Second, unlike the curtain walls, most of the bastions have stone foundations, although this is not always the case (bastions in part 7 of the rampart, in the north-west, do not appear to have stone foundations), but it is striking that, for example, the bastions in parts 3 and 5 (south-east and north-east) – where the curtain walls have no stone foundations – *do* have stone foundations. Third, excavation in Area 31 demonstrated that the foundations of bastion T21 were laid stratigraphically higher than the curtain wall it is abutting.²³ All this evidence suggests that the bastions were constructed after the completion of the curtain walls, clearly in order to reinforce these walls, to provide projecting elevated platforms for archers to defend the spaces between the bastions, and perhaps to make the rampart more impressive. As for the building of the curtain walls, the emphasis was on rapidity rather than uniformity, since the spacing of c. 35 m between two consecutive bastions is an average, actual distances ranging from 32 to c. 40 m.

Finally, maintenance and repairs of the mudbrick masonry, for which it is extremely difficult to find evidence because of the very worn or eroded state of the walls, were observed with certainty in two of the seven areas studied in detail: in part 6 of the rampart in the North-West Tell (Area 32),²⁴ where the southern face of the curtain wall has been repaired and slightly displaced; and in part 3 in Area 30, where there is a series of repairs and additions to the thickness of the curtain wall.²⁵ It is worth mentioning that this particular area was, and still is, subject to erosion by frequent micro-wadi flooding, which explains the frequency of repairs.

Absolute chronology: the accurate dating of the construction process, or of its phases (curtain walls, bastions), is a difficult challenge. There are no technical features that can provide any clues. There is no building inscription (at least, not *in situ* – see Area 35, Gate 2, below). The stones reused in the foundations

22. VILLENEUVE 2010: 159–160; 177 figs 8–9.

23. VILLENEUVE 2010: 160–161.

24. VILLENEUVE 2014: 129 and 133, fig. 3, sounding 32100.

25. VILLENEUVE 2010: 156–157 and 174 fig. 2.

of some parts of curtain wall or of bastions do not provide useful information. Pottery, stone artefacts, and coins found on the surface during survey do give some ideas but provide no clues for correctly dating the building and occupation phases (see above for the uncertain dating of the camp in Area 34: Nabataean or Roman?). The paucity and extremely fragmented character of the artefacts found in soundings exploring the curtain walls – even when associated with adjacent buildings, as in Area 32 – make the dates obtained in such places extremely vague. As all the archaeologists exploring ramparts of the ancient world are well aware, it is the excavation of gateways that provides the best results. Unfortunately, because of the very damaged state of Gate 3 in Area 33, evidence providing useful information can be obtained only from the excavation in Gate 2 in Area 35. The excavation of this gate is not yet completed, and reliable data for the dating of the curtain walls and the first stage of the gate will only be available after completion of the excavation in the lower strata, hopefully during winter 2015.

Nevertheless, to summarise all the observations made on all the material collected up to now both in survey and in excavation (Areas 31, 32, 33 and 35), including the dates provided by pottery specialists C. Durand and Y. Gerber and numismatists C. Augé and T. Bauzou, the building process (both curtain walls and bastions) certainly took place during the first century AD. Nothing seems to suggest a possible date in the first century BC (perhaps the very late first century?), and nothing in the second century AD. Therefore, the rampart, including its bastions, is Nabataean. This is consistent, as we shall see, with the evidence from Gate 2, where most of the *loci* provide first-century AD material, and where the stone masonry of part of the gate in its latest stage bears inscriptions (graffiti) by soldiers in Greek (therefore Roman – second century – in date) and reuses Latin inscriptions not earlier than AD 106. These data are firm *termini ante quem* for the building of the rampart and the first stage(s) of Gate 2.

Suggesting further that the building of the curtain walls could date to the very early years of the first century (since most of the Nabataean coins date to the early years of Aretas IV, and since Areas IV may be considered to be responsible for the refoundation, and even conquest, of Hegra), is good speculation, but it is not supported by archaeological evidence at present.

The question of dating the phases of use – as well as dating the abandonment of the rampart – is equally problematic, for the same reasons. A general examination of the material (survey and excavation) also does not suggest intensive use in the Roman period (the second and third centuries). The famous Latin inscription discovered in 2003²⁶ near Hill IGN 132, however – if it does indeed mention the *restitutio* (restoration) of the *vallum* (rampart) and not something else (*templum*?) – is evidence of the general maintenance, or restoration, of the rampart in *c.* AD 175–177. Moreover, as will be seen at Gate 2, alterations in the masonry, some of the Greek graffiti datable to the very late second century, and a *locus* providing pottery of the turn of the second and third centuries, suggest the continued or resumed use of the rampart and its gates until at least the early third century.

Nothing can be said of later periods. That does not preclude that the Hegra rampart stood as it was until much later, but it could also have been dismantled early, in order to reuse its mudbricks.

Additional evidence for the chronological question is expected after the completion of the excavation of Gate 2 and new excavations in Area 34.

2. THE SOUTH-EASTERN GATE (G2), AREA 35: FIELDWORK 2011–2014

The archaeology

During the general survey of the rampart, Area 35 (fig. 1), located at the foot of the slopes of Hill A, was selected in 2010 for detailed examination and excavation because two observations made there pointed to the probable existence of a gate. First, the two towers or bastions²⁷ located there (figs 2, 3, 11) and numbered

26. AL-TALHI & AL-DAIRE 2005; SPEIDEL 2007: 296–297; VILLENEUVE 2014: 155–156.

27. Excavation has showed that they are in fact towers.

T12 and T13 in our survey,²⁸ instead of being *c.* 35 m from each other as is usual (38.50 m between T11 and T12, for example), are unusually close to each other, 3.50 or 4 m.²⁹ Second, unlike the bastions of the rampart, these towers do not project towards the exterior, but towards the interior; additionally, their measurements differ from the others: not roughly square (3.50 x 4 m) but roughly rectangular, 6–7 m x 4 m (i.e. perpendicular to the curtain wall). Although towers that only project towards the interior is not a common feature for a gate, the observations summarised here denote a different configuration from the usual bastions, and do suggest a gate. The location seems reasonable, close to the camp in Area 34 and to Hills B and A and connecting the city centre with the assumed south–north caravan route running east of the Residential Area and with the (more closely located) rock-cut necropolis of Jabal al-Ahmar.

Based on these premises, it was decided to devote two weeks to Area 35 at the end of the 2011 season, which confirmed the hypothesis of a gateway. We expected to find, however, a situation comparable to that of Area 33 (gate G3), that is, an extremely limited height. On the contrary, we were fortunate to discover that Area 35 is in much better condition than Area 33 and many other parts of the rampart, with a preserved height reaching almost (foundations plus elevation) 2 m on the front wall (35001) of T12, as evidenced by deep sounding ‘B’ in 2011 (figs 12, 13, and 26). On the other hand, this surprising discovery and that of the inscriptions (on which see below) meant that the two weeks allotted in 2011 were insufficient. A second season of excavation was therefore undertaken in Area 35/G2 in 2014. Four weeks of excavation confirmed the excellent potential of that area, including the presence of many inscriptions. The complex stratigraphy of some areas (mainly in the gateway) was also revealed, as well as numerous repairs and alterations in the architecture, extensive reuse of stones, including a few decorative elements, and the extremely worn state of the inscriptions, often covered in hard and thick concretions. Work thus progressed slowly and it is hoped that the excavation of the gate will be achieved during the 2015 season.

So far, the outside walls (35001, 35002) and the narrower walls of the towers have been cleaned and the tower doors located (fig. 12). The interior of T12 has been fully excavated (G, I) down to the bottom of the walls although not to the geological soil, while the interior of T13 has not been excavated at all. The gateway (A, C) has been excavated down to the latest floor level in the north-east (C), and slightly deeper in the south-west. In front of the gate, a general clearing was undertaken, soundings were made in B, E, and A, and one smaller sounding (‘B [deep]’) was dug down to the bottom of the foundations and the natural sand. In addition, a long Trench J (fig. 11) was excavated in 2014 in response to a ‘magnetic anomaly’ to the north of the gate (see below) – another time-consuming operation that prevented the completion of the programme in 2014.

General description: a major gate is confirmed (fig. 12)

The curtain wall of the rampart, consisting of mudbrick walls 35005 and 35006, is 2.30 m thick.³⁰ There is a break in the wall, 3.75 m long, to accommodate the gateway. Two towers, T12 and T13, were built along the north-western (interior) side of walls 35005–35006. They do not project at all outside the rampart, thus only protecting or monitoring the gateway – a layout which is neither Greek nor Roman in conception. They are roughly rectangular, although no angle is a perfect right angle. The walls are 0.95 to 1 m thick. If we include the thickness of the outside wall, T12 is 6.70 m long and T13 7.15 m. Their respective widths are 4.25 and 4.15 m. The measurements of the chamber inside T12 are 3.50 x 2.25 m; those of T13 chamber

28. Earlier surveys had failed to uncover the presence of two towers close to each other in Area 35. NEHMÉ *et alii* (2006: fig. 68 p. 106) located only one tower of normal size and aspect. In 1986–1990 the Saudi team excavated an 8 m-long segment of curtain wall (‘Southern Trench’) to the south-west of Area 35 (north-eastern limit of this trench, 18 m south-west of the south-west face of Tower 12) but did not detect either the potential of Area 35 or the possibility of a gate there: AL-TALHI 2000: 45, 237 fig. 3.6, 270 map 3.1.

29. The exact distance, which is the width of the gate, is 3.75 m.

30. This coincides with the results of the Saudi excavations (1986–1990), in the ‘Southern Trench’: AL-TALHI 2000: 46.

are probably similar. The gateway is between 3.75 and 3.80 m wide. Both towers open into the gateway via narrow doorways measuring 0.90 m wide, located in the north-west end of the gateway. The internal floor of T12 is made of beaten earth. The situation appears more complex in the gateway, where no stone pavement was reached, but there is some evidence in part of area C of a (possibly later) mudbrick floor. The door thresholds and the main gate supports were built of stone. As far as the walls are concerned, they were built mostly of mudbrick – some constructed entirely of mudbrick – such as walls 35008 and 35009 of T12. The front wall of the gate, however – along a length corresponding to the width of the two towers – and walls 35003 and 35004 facing the gateway, were built entirely of stone, up to what is preserved today (c. 1 m, plus the foundations). Since the quantity of fallen stones found during the excavations is small, it is possible that the entire course of the walls above the level preserved today was built of mudbrick; it is also possible that higher, stone-built, courses of the walls, were dismantled and reused elsewhere.

The stones used for building the exteriors of walls 35001, 35002, 35003, and 35004 seem to have been reused extensively, not cut especially for the building of the gateway. This is most evident for two stones bearing Latin inscriptions (see below), and raises the question of the building(s) from which these stones could have been reused. A hypothesis was proposed based on the discovery in 2011, by C. Benech, of a magnetic anomaly in the vicinity of G2. This anomaly was tested in 2014.

The ‘magnetic anomaly’ (figs 11 and 14)

Survey on the ground combined with the study of aerial images did not reveal any traces of buildings in the vicinity of the rampart in or near Area 35, either outside the rampart or inside it. To the north-west of G2, beyond some low dunes and c. 30 m from the rampart, there is a small *qāʿ* (a flat hard clay area) extending over c. 60 m north-south and 25 m east-west, then south to reach the foothills of Hill A in a gentle gravelly slope. The geomagnetic survey conducted in 2011 by C. Benech in the southern part of the Residential Area up to the rampart generally confirmed this diagnostic, in particular that ‘nothing supports the presence of streets’ near Gate G2. In the area of low sand dunes close to the gate, however, it suggested a ‘well-defined rectangular shape giving out a fairly weak signal’.³¹ The exact location of this anomaly, separated from the gate by a space less than 10 m wide, was marked on the ground and on **figure 11**. As is shown on the figure, the magnetic image is not a perfect rectangle, but a quadrangle, the sides of which measure between 10.30 and 13.40 m.

It does not resemble magnetic images of dwellings and it is located far from traces or magnetic images of dwellings, which are located much further to the north (notably because of the *qāʿ*, which is unsuitable for dwellings). Its orientation differs from that of the rampart and the gate. If a building did stand there in antiquity, it would have blocked the entrance to traffic going towards the city centre through G2, and it is therefore probable that this supposed building was no longer there when G2 was in use. Based on these premises, we supposed that the anomaly could signal an earlier stone building, which was destroyed at the time or before the gate was built, while its stones were reused in the stone masonry of the gate. Considering the shape and size of this ‘building’ and its peripheral location in relation to ‘early (western) Hegra’, we thought it might have been a tomb.

In order to check the validity of these ideas, a trench was opened during the 2014 season. Its location (Trench J) is shown on figure 11. It cuts through the middle of the ‘anomaly’, with a north-north-east/south-south-west orientation, and it is 2 m wide and 11.50 m long, overlapping its northern and southern limits by 50 cm. The result was surprising (**fig. 14**): over a 90 cm depth (*loci* 35090–091) only pure unstratified sand was found (no floor, no organic remains, etc.), with very few anthropogenic remains: three small fragments of architectural stone (sandstone) measuring between 6 and 35 cm, one small volcanic scoria, and six small pottery sherds. In fact, within a little over 20 m³ of sand, the trench revealed nothing of any significance and

31. BENECH 2011: 293 and 308–310 (figs 15–17).

there was no trace of any architecture. On reaching and cleaning a very loose sandy exterior ‘floor’ (*locus* 35092), the trench was abandoned. An isolated medium-sized (40 x 20 x 10 cm) architectural stone was found there (fallen there after reuse, as shown by indentations on its edges left by metal tools) together with a handful of very small sherds and some gravel. It is also possible to distinguish faint traces of human and/or animal footprints, which appear to indicate some kind of footpath or track leading north, in other words not in the axis of the gateway (i.e. south-east/north-west) but towards the *qāʿ* and the city centre. The level of floor 35092, 780.95–781.06 m asl, is consistent with the most secure architectural levels found in the north-west part of the gateway itself, *c.* 782 m asl, in view of the distance of 14 m between the trench and the gate and the natural slope. The excavation was stopped once 35092 had been cleaned for two reasons: first, the level reached (*c.* 781 m) is almost the same as that of the *qāʿ* some 20 m to the north-west (780.89 m) – a strong indication that floor 35092 is just above the geological soil of the area; second, continuing this time-consuming excavation would not have provided any information on the ‘magnetic anomaly’, as a depth of almost 1 m of sand would inhibit any magnetic reaction from something possibly buried deeper (thus the magnetic signal detected in that area cannot have come from elements deeper than 35092).

On the one hand, Trench J provided useful – though mainly negative – information: no street in this area close to the gate (confirming the geophysical survey); no built floor (confirming the situation found in Area 2 of the Residential Area, where no such floor was found for the main street of that part of the city);³² and scanty traces of pedestrian and/or animal circulation from the gate towards the city centre. Thus, the location and orientation of the gate do not seem to have had a direct influence on the urban layout. On the other hand, since no evidence for a building was found, the trench clearly demolished the idea of a stone (or partial stone) building, earlier (or not) than the rampart and from which stones would have been taken for reuse in the stone masonry of the gate. Finally, we are left with a more technical question, interesting from the point of view of the geophysical survey: in the absence of any element explaining the anomaly in a perfectly positioned trench, what is the reason for this ‘incorrect’ signal?

Architecture: description and evolution (fig. 15)

The major part of the masonry is in mudbrick. Only the outer faces of walls 35001–35002 (the outside wall of the gate) and walls 35003 and 35004 (the walls of the gateway), the doorjambs of the towers, the preserved elements of the doorjambs of the gateway, and the door sills are in stone. The other walls and the inner faces of walls 35001, 35002, 35003, and 35004 are in mudbrick, although a few stones are occasionally present. It should be mentioned that even for the stone walls, the upper parts above the preserved level (maximum *c.* 783.30 m asl), were possibly also built in mudbricks, although this cannot be proved.

The curtain walls

Since the curtain wall 35006 to the north-east of G2 has not yet been excavated, the information is based on wall 35005 (figs 16–17), excavated in 2011 to just below the foundations (sounding B). The bottom is 781.84 m asl. The wall is built directly on natural sand and its preserved height is 1.50 m. It is built entirely of regular courses of mudbrick, 12–15 cm thick and generally *c.* 30 cm long and 25–30 cm wide. The inside of the wall is carelessly built with the occasional use of fragmentary bricks. The foundations of wall 35005 are 25 cm higher than the south-west end of the stone-built wall 35001. At first glance, we thought that the south-west end of 35001 was an angle of a stone-built tower (T12) and that the curtain wall 35005 was built later than the tower (and the gate): it is indeed usual to build the gate first and to abut the curtain wall against it. This proved to be incorrect for several reasons, two of which should be mentioned here because of their importance. The first concerns the analysis of the building itself: the north-western face of wall 35005 continues north-east beyond that angle as the element mentioned on figure 15 as ‘Platform 35071’, without

32. FIEMA 2010: 95, for example.

any interruption or abutment. In other words, 'Platform 35071', the north-west face of which forms the south-east limit of Tower 12, is part of the same building process as curtain wall 35005. The second reason relates to the general chronology: the circuit of the rampart is firmly dated to the first century AD, that is to say the Nabataean period. Towers T12 and T13, as they currently stand, cannot be dated earlier than the early second century AD since the masonry (see below) reuses a series of Latin military inscriptions, which are not earlier than the early second century. Consequently, walls 35005 and 35006 – the curtain walls of the first-century rampart – are earlier than the second-century towers and gate. This chronological context does not prevent us from looking for earlier, first-century phases of the gate, which might possibly be uncovered by further excavation.

We turn now to the stone façade of the gate buildings using the hypothesis that the mudbrick wall 35005 was cut where it currently adjoins wall 35001, and replaced by a stone façade, the foundations of which, to render them more solid, were laid in the natural sand 25 cm lower than for wall 35005.

The exterior wall (façade) of the gate (figs 15–18)

Here again the information is incomplete, since the main (preserved) part of wall 35001 was uncovered (**fig. 16**) (though it is necessary to excavate a few centimetres deeper in sounding E in order to reach the earliest floor levels), while only the top two courses of wall 35002 are visible.

Before examining wall 35001, the question of the general structure of the façade, and of the gate, must be raised. In reconstructing the general structure, one might first imagine the presence, at some height (3 m?) over the gateway, of a horizontal architectural element of undetermined thickness that connected walls 35001 and 35002 and ensured the continuity of the covered way at the top of the rampart. This element might have been limited to the front part of the gateway or, alternatively, it might have roofed the entire gateway, thus emulating a common gateway structure in the ancient world. Such a reconstruction is theoretically possible here, with palm trees used as beams for the roofing of the 3.75 m-wide gateway. The height would have been limited in order to avoid an excess of weight (therefore probably avoiding extensive use of mudbricks and definitely no stones). There is, however, no archaeological evidence to support this theory, and an alternative and more basic structure can be proposed: a gate composed only of two curtain walls, two towers, and an unroofed gateway that could be closed by a double wooden gate located at 'Threshold 35007' and 'Pier 35068' (**fig. 15**).

When looked at in front view (**figs 16–18**), wall 35001 appears at first glance to be an ordinary stone wall, with fairly regular courses (between 20 and 25 cm high), with the eastern angle and the south-western end being more solidly built. According to sounding 'B deep', the foundations were laid directly on sand at 781.58 m asl and it is preserved over a maximum height of 1.90 m. It is clear that wall 35001 was hastily built (see **fig. 17**, third stone from bottom laid at an angle) against the north-eastern end of wall 35005 *after* it was vertically cut (**figs 16–17**: small projecting stone, third from top, at the join with mudbrick wall 35005), and entirely built with reused stones (see e.g. **fig. 17**: fourth stone from bottom with deep indentations on the upper edge, caused by metal tools used to remove the stone from another wall; **fig. 17**, third course from top, third stone from left: a small drum, polygonal in section, of a type known in Madâ'in Sâlih and al-'Ulâ, laid horizontally; **fig. 16**: the stone labelled 35001_i03 near the eastern angle of T12 at the bottom and bearing a horizontal Nabataean inscription was laid vertically; see also **fig. 18**, fourth course from top, second stone from right, and **fig. 19**).

The present state of wall 35001 illustrates a more striking characteristic: as shown in figures 16, 18, and 26, there is a large 'hole' in the middle of the wall, 80 to 90 cm wide, 48 cm high, which corresponds to the height of three stone courses. The bottom of this 'hole' is located at 782.56 m asl, that is, slightly higher than the latest floor (c. 782.50 m) and c. 1 m higher than the foundations. It is not strictly speaking a 'hole', since it is filled with mudbrick. Because of this filling, the stone covering this space, acting like a 'lintel', is *in situ* despite the fact that it does not lie over other stones. In addition, a mass of melted mudbrick (*locus* 35033) was packed in front of the 'hole', 15 cm thick in front of the wall (**fig. 26**) (the lower half of the

mudbrick mass is visible in the centre of **fig. 18**). It is clear that this hole and its mudbrick fill, combined with hardened clay, can only be explained by the partial collapse or dismantling of the original stones, which were replaced by the fill.

This leads us to a final observation, crucial for the understanding of the history of the gate, which is also illustrated in figures 16 and 26: the very narrow thickness (c. 0.85 m) of the stone-built parts of walls 35001 and 35002 (they are only thicker near the angles on both sides of the gateway, evidently for solidity). Thus, what we call ‘wall 35001’ and ‘wall 35002’, far from being ‘ordinary’ stone walls, as proposed above, are actually mudbrick walls with a stone facing which is a substitution for the earlier – and usual – mudbrick. This makes sense in the context of sounding ‘B deep’: the south-east face of curtain wall 35005 was cut vertically; the area was excavated slightly below (25 cm) the level reached by the original builders when they were laying the foundations of the first-century mudbrick rampart; and the stone facing consisting of reused materials was hastily added, replacing the usual mudbrick façade. This crude process probably resulted in the collapse of the central part of the stone facing (35001), which was later repaired using mudbricks compacted with hardened clay (35033).

The tower walls facing the gateway

The structure of walls 35003 (entirely excavated on both sides, except for the foundations) and 35004 (still only partially understood), which are 1 m wide and flank the gateway, is somewhat similar to that of the façade: the exterior facing the gateway is built of stone, but the interior, inside the towers, is of mudbrick. Evidence is lacking, however, to confirm whether this feature is the result of alterations or whether the walls were originally built this way. It will be necessary to make deep soundings both in the towers and in the gateway to obtain a clearer picture of the foundation levels of both sides and how they relate to the general stratigraphy. For now, we are certain that the south-west mudbrick wall 35003, inside Tower 12, was laid over a bed of flat stones (**fig. 20**) lying at 782.07 m asl, in other words almost at the level of the stone threshold of T12 (782.05 m), and therefore at a much higher level than the foundations of the stone-built north-eastern side of 35003. We are not yet in a position, however, to interpret the significance of this difference in levels. The general layout (**fig. 15**: walls 35003 and 35004 parallel to each other and to external walls 35008 and 35070 of the towers, and perpendicular to their rear walls 35009 and 35010, *but not strictly orthogonal to the rampart*) leads one to suspect that the building process was careless at best, and that possibly a complete (and hasty) restoration was undertaken after a more carefully designed early phase.

Between three and five courses of wall 35004 (**fig. 21**) are preserved (not including unexcavated foundations), 1.30 m above the level of the lower stone of the sill in the doorway giving access to Tower 13 (782.03 m). This part of the wall gives an impression of relative homogeneity and care in the building process – more or less regular courses, use of medium-sized stretchers – with the exception of the door sill, which is composed of two stones, one lying 9 cm higher than the other. Despite the uniformity of the wall, the stones used here were not all quarried and cut specifically for it: as will be seen below, at least one stone from an earlier building, bearing a Latin inscription, was reused here (the stone, second from top, is located on the left doorjamb of the blocked doorway leading to Tower 13); further evidence of reuse is provided in figure 23 in the form of a graffito of a camel drawn on a stone laid upside down.

Wall 35003 (**fig. 22**) is preserved up to a height of 1.30 m above the level of the stone threshold of the doorway to Tower 12 (782.05 m). In contrast to wall 35004, there is a complete lack of homogeneity. The south-eastern part of the wall consists mainly of very long stretchers and the central part, up to the blocked door of T12, of high boulders; the north-western end (north angle of T12) seems poorly built or rebuilt (stones not level, a lot of clay and gravel fill); in the north-west doorjamb, the second stone from the bottom is a worn reused cornice stone laid upside down (same type as 35054_AB01, reused in the fill of the doorway; see ‘Architectural decoration’ below), which it was necessary to recut to fit the doorjamb (**fig. 20**, left, second stone above the sill). Other reuse is evident, such as the Latin inscription (35003_i01) at the north-western end (see ‘Inscriptions’ below). More generally, it seems clear that the whole wall was

built with reused materials, taken from at least two different buildings. Variations in the colour and texture of the sandstone also attest to the variety of the buildings plundered for their stone. What is not yet clear is whether the northern angle of Tower 12 is the result of a rebuilding that took place later than the rest of the wall. This theory is based not only on the poor quality of the construction, but also on the presence in the gateway of a large quantity of fallen worn ashlar buried below the latest floor.

In summary, our main conclusions concerning these two walls are that they were made of reused stones taken from several earlier buildings and that the north-east wall of Tower 12 (and possibly also the south-west wall of Tower 13) was subject to rebuilding and repairs, perhaps more than once.

The towers

Here again, more information was obtained on Tower 12, excavated down to the hard earthen floor associated with the 782.05 m door sill, than on Tower 13, which is not yet excavated, but the parallel walls and the general symmetry allows us to conclude that the architecture and its modifications are generally the same for both towers. The fact that the doorway of T13 was blocked with stones and mudbricks (**fig. 21**), as was the doorway of T12 (**fig. 22**), confirms this similarity.

Two points concerning these towers should be emphasised: 1/ they were first built as actual towers and later converted into bastions; and 2/ the curtain wall was incorporated into their architecture *via* some transformations.

That T12 and T13 were first built as proper towers, unlike the other bastions of the rampart, is evident because they had doorways at floor level. The excavation of T12 (**figs 24 and 26**) revealed an ashy occupation layer (35059B = 35042) at a level corresponding to that of the door sill. In a later phase, the doorways were blocked, with large stones at the bottom of the doorway at least (see **fig. 24**), and the towers themselves were infilled, using fragmented mudbrick and mud (fill 35056–053 in T12) to convert them into bastions. We do not, at present, know the reason for this conversion. Layer 35059A = 35041 below the fill and over occupation layer 35059B = 35042 looks like a destruction level and is covered by a loose working floor (35057, *c.* 782.33 m asl) used as a base for the fill: hence it is possible that the conversion into bastions was the result of a partial destruction. The evidence for dating the conversion is poor. One worn fragmentary coin discovered in occupation level 35059B is possibly Roman; one half of another coin, found on the working floor 35057 (immediately earlier than the filling), is part of the Athena/owl local coinage, probably second–first century BC.³³ The destruction layer 35041 and the bottom of the doorway fill 35054 contained two fragments of a small-size pilaster bearing six to eight letters of a Nabataean graffito (see ‘Architectural decoration’, below). This does not provide accurate dates, but it does suggest that the fill blocking the doors and the conversion into bastions dates to the Roman period, not earlier. This is confirmed (see ‘Inscriptions’, below) by the reuse of a Latin inscription dated later than AD 106 in the north-west doorjamb of T13: the fill must therefore be post-AD 106.

The problem of how the south-eastern end of T12 was built before this conversion is important because it is linked to the question of how the mudbrick curtain wall 35005 was incorporated into the gateway and connected to it. As is shown on **figures 15 and 26**, the south-east wall of T12 is formed by a north-west wall labelled ‘Platform 35071’, preserved up to 783.37 m asl. Once this element, constructed of (worn) courses of mudbrick, was differentiated from fill 35053–55–56 and having identified the similarity in thickness and the absence of any division between 35071 and 35005, one can legitimately ask whether 35071 was actually an internal platform to T12, with a floor some 1.30 m higher than the floor of the main part of the tower, or whether it is the lower part of an ordinary wall that simply eroded or was dismantled. The reason for holding on to the idea of a platform at a higher level in relation to the rest of the tower, is the presence

33. 35059_C01 and 35057_C01. Identifications by T. Bauzou 2014.

of a small shallow stone basin at the eastern corner of T12 (where 35071 and wall 35003 meet, **fig. 25**); it appears to indicate a functional area before the tower was infilled.

The gateway (figs 15, 27, 28)

Only preliminary evidence can be provided concerning the gateway, as the stratigraphy here appears to be extremely complex (**fig. 15**, inset bottom right, gives an idea of the complexity in part of Trench C along wall 35004) and the excavation did not reach the levels associated with the main architectural phase(s) of the gate. So far, no floor has been encountered, except a possible fragment of mudbrick floor, labelled 35067 (**fig. 15**: main figure, and inset at bottom right).

Summarised here are the results obtained for the sill and doorjambs of the gate proper: the last three phases have so far been identified.

The first phase (quite probably not the earliest in the history of the gateway, since we believe that the stone wall 35003, and probably 35004, is the result of conversions of an earlier building) is associated with the period when these last walls were as they stand today, except that the doorways leading to the towers were not yet blocked. The sills of these doorways lying between 782.03 and 782.11 m asl (**fig. 22**), there was necessarily an associated floor in the gateway at *c.* 782 m asl or several centimetres lower, which has not yet been reached. It seems that the main sill and doorjambs associated with these floors have disappeared, probably destroyed at the end of that phase.

In the second phase, the fill blocking the doorways to the towers and the conversion of the towers into bastions, necessarily accompanied in the gateway by a raising of the level, resulted in the building of a poor-quality refurbished system of sills and doorjambs (**fig. 15**: Pier 35068 and its opposite against wall 35003; original position of sill 35007 shown by dotted lines). As this arrangement was later modified, at the end of the 2014 season it was decided to put it back in its original position (**fig. 27**). The sill, located a quarter of the way down the gateway, consisted mainly of two long slabs (or perhaps one broken in two), 22 cm high, 30 cm wide, and 144 and 94 cm long, and probably a few additional elements. Some crude drawings were carved on the surface (see below). The doorjambs are not symmetrical. The south-west one (**fig. 27**, top) is a long parallelepiped-shaped stone set vertically; the *in situ* stone (against wall 35003), was broken off obliquely and is 56 cm high, 31 cm wide and 38 cm thick. The other half of the same stone was discovered in excavation (35014_AB01), and is 94 cm high. The whole stone would thus have measured 1.50 m in height. There is no trace of mortar binding this doorjamb to wall 35003. The north-east doorjamb, 35068 (**fig. 27**, bottom), by contrast, is a pillar built of medium-sized stones, with a maximum preserved height of 57 cm, and is 76 cm wide and 83 cm thick. As a doorjamb, it extends further south-east than required by the threshold and doors, probably to reach a maximum width for solidity. Its stones are bound with mortar and the whole doorjamb is joined to wall 35004 with solid mortar. The dissymmetry of the stone setting confirms that this doorway not only is not the original one, but also cannot have been associated with the early stages of walls 35003 and 35004 as we know them. It is clearly the result of a refurbishment but, assuming that there was a (wooden?) lintel in that phase, gate G2 was still undoubtedly provided with a double-door (wooden) gate.

The third and final phase (**fig. 28**; see also **fig. 15**, where threshold elements are shown in solid lines) is characterised by the removal of the doors, since the two main elements of the threshold were moved by *c.* 30 cm to the south-east, tilted and laid on their narrowest edge: they were too high to function as a gate, and the interval between the north-west faces of the doorjambs and the doorsill would have prevented the installation of doors. During this phase, a small stone bench (**fig. 28**) was built against wall 35004 and pier 35068. The very high door sill and the bench lead us to suppose that even if there was no gate, the building was still used to monitor access to and from the Residential Area. Finally, the instability of the threshold stones lying on their narrow faces resulted in the collapse of the north-eastern elements of sill 35007 towards the south-east (**fig. 28**).

Architectural decoration (figs 29–31)

Many of the individual architectural fragments (reused or not), as well as small artefacts, pottery, and coins, will be described and interpreted in the final report after completion of the excavation. Let us for now mention three of these, in order to underline the variety of the building materials used/reused in gate G2.

As briefly mentioned above (‘Architecture: description and evolution’ / ‘Tower walls facing the gateway’) a stone block, 35054_AB01 (**fig. 29**), was found reused in the fill blocking the doorway between the gateway and Tower 12 (see position and section on **fig. 24**). This is part of a cornice, consisting of a cyma recta moulding and a frieze. It is 74 cm long (though one end may have been broken off), 23 cm high and 40 cm wide, indicating it was part of a small monument. As already mentioned, another element of the same type of cornice, very worn and with the frieze deliberately broken, was found reused (see above, and **fig. 20**) in the north-west doorjamb of the same doorway. It is unusual for two blocks of the same entablature to be found reused both in the architecture of a doorway and in the fill blocking it: both were probably taken from a heap of debris from an earlier building (rather than from an earlier, monumental, stage of the gate itself), and the chronological gap between the (final?) (re-?)building of the northern angle of T12 and the blocking of the doorway is therefore not wide.

Also mentioned above (‘Architecture: description and evolution’ / ‘Towers’) are two smaller fragments of architectural decoration, one found at the bottom of the fill blocking doorway 35054, the other at the bottom of destruction layer 35041 in T12, very close to each other (see drawings on **fig. 30**). The two fragments are not from the same stone, but they could be fragments of two consecutive plates in a series; the thickness is 4 cm, the width 18 cm; the tooling of most of the surface and the smoothing of both edges probably denote plates for a wall facing, possibly a small-size pilaster. The shortest fragment bears a Nabataean graffito of six or seven letters (*šlm* + a name)³⁴ (inscription 35041_i01).

Finally, during excavation of the final destruction layer near the south angle of T13, an isolated fragment of sculpture was found (35060_AB01, **fig. 31**). It is the almost complete left outspread wing of a bird (height 23 cm, width 16 cm, thickness 4.5 cm). Before being probably reused as a small broken stone within the masonry (no other elements of the same type were found), it was originally part of the statue of an eagle, either standing alone (as a common symbol of divine, imperial, or royal power, frequent in military and other contexts) or as part of a larger group. At present we lack elements to associate it with the Roman period (though this is tempting) rather than with the Nabataean period.

Inscriptions, graffiti, and carved drawings (fig. 32)

Almost thirty inscriptions or graffiti have already been discovered while excavating gate G2, most of them *in situ* on the stones of walls 35001, 35002, 35003, 35004, and on door sill 35007. That number will continue to increase, not only because further excavation – especially on parts of as yet unexcavated walls 35002 and 35004 – is expected to uncover new texts, but also because there are probably more texts within the areas already excavated, which have not yet been discovered as their legibility varies widely depending on various factors (light, time, weather, etc.). Most of the texts are worn, sometimes extremely so. Some stones are palimpsests, for example small Nabataean graffiti and larger Greek graffiti, and the Latin inscriptions are extremely difficult to decipher. Below is a short representative selection of what we consider to be some of the most interesting texts, including two series of carved drawings, a form of expression that is also found on the walls of the gate, although it is much less abundant than the written texts.

Nabataean inscriptions on fallen stones

We have already mentioned (see above ‘Architectural decoration’) the small Nabataean graffito (35041_i01) on a small broken pilaster at the entrance to T12. Another, longer, Nabataean text (35018_i01, **fig. 33**)

34. L. Nehmé has provided a preliminary reading.

consisting of three lines, was discovered on the smoothed face of a sandstone slab fallen in a late destruction layer close to wall 35003. The stone is 56 cm long, 22 cm wide, and 18 cm thick. The lines are written perpendicular to the length: as the stone (most probably used in wall 35003) was a stretcher (i.e. laid with the long side outermost), the Nabataean text cannot be a graffito written on the wall when the stone was used horizontally. The text is therefore a *terminus post quem* for the erection of the stone facing of wall 35003 as it currently stands.³⁵

The inscription is written on a small part of the available surface, the remaining two thirds of the block having suffered from erosion. The text is carefully carved.

There are three lines of text. Some characters incised in the upper part do not form lines of text and are probably not part of the main inscription.

šlm š'yw

br 'bgr

bṭb l'l[m]

‘May Ša‘iyū

son of ‘Abgar

be safe in well-being forever’.

There is some doubt concerning the presence (or not) of a Nabataean letter between the ‘ and the y of š'yw. The examination of several photos, however, allows us to conclude that the oblique mark that follows the ‘ is not necessarily part of the text. The same is true for the oblique mark that begins from the final w. This text is a simple document expressing a wish. The names of the author and his father are attested but rare in Nabataean onomastics.

Besides these two examples of graffiti on reused blocks, of an earlier date than the present walls of the building, it should be added that short Nabataean texts were also found written either in large letters or in medium to very small characters on stones *in situ*. The stone bearing inscription 35001_i03 (figs 32/1 and 19), mentioned above, was clearly reused as well, but other inscriptions (figs 32/2, 5, 7, 8, 9, 20) were probably (partly or wholly) graffiti written on the walls as they stand at present.

Official Latin inscriptions on stones reused in the masonry

Latin is present (or possibly present), alone or with other languages, on three stones (figs 32/4, 7, 9) where the inscriptions are barely legible. In addition, there are four texts that are sufficiently well preserved to suggest interpretations. Two are on wall 35004, reused on both jambs of the doorway to T13 (fig. 32/21–22); the other two are on the same stone at the north angle of T12 (figs 32/10 and 12).

• **Latin inscription 35004_i06 (figs 32/22 and 34)** is written on a stone located in the north-west jamb of the doorway to Tower 13, second stone from the top. This is not the usual position for such a public document: the stone was reused and probably relocated there so that it could be read by soldiers guarding the gate. The stone is 25 cm high and 35 cm long. There are seven lines, plus a preliminary line of symbols. The height of the letters varies between 1 and 2 cm. The script is irregular, especially in the last three lines. The first line is extremely worn, as is the right edge of all the lines. Deciphering and interpreting the text is very difficult, due both to the state of the stone and the complexity of the text. T. Bauzou, Z. T. Fiema, and F. Villeneuve offer the following preliminary reading:

(palm – two laurel crowns – erased palm)

----OLEG

IIICYRFELICIT D----

SVCVRAVALERI. MA

35. The following description and text (35018_i01) were provided by L. Nehmé.

7IX PR.PR.P.IAFIDVS FAVSTVS
 7VIII LPILPOS.C.REPOSTVS ET
 STATIONARI.ADPOR TA
 GRATIASAGIMVSEQDRO

which could be interpreted as follows:

[Genio??? Leg(ionis)]

III Cyr(enaicae) felicit[er]!

Su(b) cura Valeri(i) Ma...

(centurio) IX Pr(inceps) Pri(or) P(ublius) Iafidus Faustus

centurio) VIII Pil(us) Pos(terior) C(aius) Repostus et

stationari[i] ad porta(m)

gratias agimus eq(uites) dro(medarii).

Proposed translation:

“-To the Spirit of the 3rd Legion Cyrenaica, congratulations! Under the responsibility of Valerius Ma---, Publius Iafidus Faustus, centurion *princeps prior* of the 9th cohort, and Caius Repostus, centurion *pilus posterior* of the 8th cohort, and the soldiers on duty at the gateway, we give thanks, [with] the camel riders’. This significant and odd document raises many questions, among which the important issue regarding the existence in Hegra – apart from the expected and now confirmed presence of the 3rd Legion Cyrenaica – of a *statio*, since the soldiers mentioned on line 6 are *stationarii*). A *statio* may probably be considered here as a military position controlling the area, less important than a camp (*castra*) or than a fortress (*castellum*).³⁶ We know from the Roman military documents of the Eastern Desert of Egypt, in the early 2nd century AD for example, that *stationarii* were in control of the traffic through that desert. Our text commemorates the happy end of an operation which resulted in the construction of some building. That document is of crucial importance for the history of the gate since, apart from the *equites dromedarii*, the writers are the guards / *stationarii* of a gate (*porta*) and two centurions (mentioned with the details of their ranking, *princeps prior* and *pilus posterior*) serving in two different cohorts, P. Iafidus Faustus and G. Repostus, while Valerius Ma--- is certainly a senior officer. The simplest interpretation is that the *porta* refers to gate G2, but obviously at an earlier phase than the one presently excavated, since the reuse of the inscription demonstrates that the original building was either destroyed or demolished.

As far as the chronology is concerned, the text as we read it does not provide any precise clue, except that it was written after AD 106, the date of the Roman annexation.

• **Latin inscription 35004_i05 (figs 32/21 and fig. 35)** is written on a stone located in the south-east jamb of the doorway to Tower 13, second stone from the top. It is also reused, as can clearly be seen from the text, which is almost completely illegible, indicating that the stone was moved and worn before being inserted here. The stone is 42 cm long and 19 cm high, the letters are 3 cm high. Only one line is legible, probably the first line, if the inscription was started on that stone:

.OMHLEGIII.Y.

F. Villeneuve suggests the following reading:

I(ovi) O(ptimo) M(aximo) H(ammoni) Leg(io) III [C]y[r](enaica) ----

‘To Jupiter the Excellent the Highest Hammo, the 3rd Cyrenaic Legion ----’

36. CUVIGNY 2014: 270–272.

IOMH is a common abbreviation for Jupiter Optimus Maximus Heliopolitanus, the Jupiter of Baalbek, but according to our reading of the next inscription, 35003_i02 (see below) we prefer to interpret the H as an abbreviation of Hammon since Jupiter Hammon is the god of the 3rd Cyrenaic Legion.³⁷

This text is useful as a confirmation of ‘Legio III Cyrenaica’ in the previous inscription (35004_i06).

Latin inscriptions 35003_i02 and 35009_i01 (figs 32/10, 32/12 and 36) are written on two faces of a corner stone, which was reused at the bottom of the north angle of T12. Its position – 60 cm above the threshold level of T12 (see fig. 22, right) – indicates that it was reused (this cannot be the original location of a votive inscription), perhaps by Roman soldiers trying to gather together elements of an earlier, more decorated, building after a disaster. The stone in wall 35003 is 25 cm high and 37 cm long, and 54 cm long in wall 35009. The angle of the stone is decorated with a crude relief depicting an eagle holding the draped bust of a masculine figure (man or god?) on its outspread wings. The face is very worn but it is just possible to make out a pair of horns. On the left-hand side of the stone, inscription 35003_i02 is contained within a shallow frame, 11 cm high x 25 cm. On the right-hand side, inscription 35009_i01 is also set within a shallow frame, 12 cm high and 22 cm long. On the same side, just beside this frame, is an empty frame of comparable size. As it is slightly deeper than its neighbour, it probably contained an inscription that was erased.

• **Inscription 35003_i02 (fig. 37)** has five quite regular lines, with letters measuring 1.5 cm high. It has taken three scholars (F. Villeneuve, Z. T. Fiema and T. Bauzou) four years (2011–2014) to propose a secure reading of the text, after a lengthy and difficult cleaning process to remove hard salt and clay concretions from the surface.

The correct reading appears to be following:

HAMONOSTROFELIC
TANTOPROCLVS7PRI
VLP.BASSVS7TITEIVE
BENEEXIVIMVSGRA
TIASAGIMVS

which could be interpreted as:

Ham(m)o(ni) Nostro felici(ter) (or: Felici) / T(itus) Anto(nius) Proclus (centurio) pri(mus pilus) (et) / Ulp(ius) Bassus (centurio) tit(ularius???) eius / bene exivimus, gra/tias agimus

Translation:

‘To our god Hammon. Congratulations. [or To our Happy god Hammon.] Titus Antonius Proclus, first centurion of the Legion, and Ulpius Bassus, centurion, his assistant (? secretary?): we made good our escape and we give thanks’.

This document is riddled with difficulties and includes some surprises. For example, the shortened formula HAMO for the god Jupiter Hammon (*Hammoni* in the correct dative form) is unusual and can probably be explained by a lack of space. The end of line 3, TITEIVE, is far from clear. The word *titularius* is not classical Latin, but it is possible that the word *titulus*, meaning ‘inscription’, generated the noun *titularius*, a writer of inscriptions and official documents or scribe. *Bene exivimus* is also not common: it could be understood as ‘we escaped’ (from a great danger, in a battle, for example) or ‘we reached the end of the road’ (after the long journey to Hegra, for example). Whatever the case, the text is clearly a Roman military votive inscription, dedicated to Jupiter Hammon. The draped figure on the wings of the eagle on the corner is undoubtedly Hammon himself, since the main characteristic of this god is his horns. The name Ulpius has the Trajanic (or post-Trajanic) connotations already noted in inscription 35004_i06, while Bassus is frequent too in the early third century.

37. E.g. SARTRE 1982: inscription 9107.

• **Inscription 35009_i01 (fig. 38)** is composed of only two lines. The letters are tall, measuring 4.5–5 cm. Although they are carefully carved, the end of the second line is quite irregular. The text poses particular problems as everything in it is abbreviated, and uses not only shortened formulas but also ligatures, such as small letters inscribed within large ones and smaller letters inside the small ones, etc. In addition, the end of line 1 seems to have been crudely rewritten at a later period.

As far as the original text is concerned, F. Villeneuve (with the help of Z. T. Fiema and L. Tholbecq) proposes the following:

I.O.M.HL.N.I (?)

CoI.CA.OP.7.LEG.IIICyR

In line 1, the three letters HLN are joined together. The last three letters of line 2 are joined into one monogram.

The following interpretation is tentative:

I(ovi) O(ptimo) M(aximo) H(ammoni) L(...) N (...) I (...)

Co(hortis) (primae) Ca(...) op(tio) (centurionis?) Leg(ionis) (tertia) Cyrenaicae.

Translation:

‘To Jupiter the Excellent the Highest Hammo ---- (missing name?), warrant officer of the centurion of the First cohort of the Ca---- in the 3rd Cyrenaic Legion’.

Several problems encountered in the second half of line 1 and in the first half of line 2 prevent us from considering the translation as secure, and it is possible that the text continued on the right, inside the probably erased second frame (although writing *one* inscription within *two* frames would be very unusual). The text is clearly votive, it is a dedication to Jupiter Optimus Maximus Hammon (better than *Heliopolitanus*, since Hammo is present on the other face of the stone), in some way complementing the previous inscription. But the end of line 1 is obscure: the author’s name should be there (since it is not in line 2), but it is extremely strange that a name (actually forename, lineage name, and family name), in a Latin military inscription, is abbreviated by three letters. The second line confirms the fact that both texts, 35003_i02 and 35009_i01, are related to the history and career of the officers and soldiers of the 3rd Legion Cyrenaica. The abbreviation at the beginning of line 2 certainly means *cohors prima*, the First cohort. ‘CA----’ is probably the beginning of a civic or ethnic name, such as *Canathenorum* (the people of Canatha in Syria): the ethnic origin of the soldiers of that cohort. Op means *optio*, a non-commissioned officer rank in the Roman army. Then follows the symbol for *centurio* in the Latin inscriptions and, quite clearly though abbreviated and ligatured, the name of the 3rd Legion Cyrenaica. What is difficult, however, is to understand if only one person (the *optio* of the *centurio* of the cohort of the Legion) or two (an *optio* in the cohort and a *centurio* in the Legion), or several (which would explain the possible absence of name) is/are involved. Normally indeed, a cohort of inhabitants from a particular place (here perhaps *Canatheni*), being an auxiliary troop of the army, is not part of the Legion.

We are left with many unanswered questions, but the four Latin inscriptions presented here at least confirm that the 3rd Cyrenaic Legion was significantly present in Hegra after the Roman annexation, and demonstrate that there was, at gate G2, a first Roman phase earlier than the architecture currently visible.

Soldiers’ graffiti in Greek

Not all the Greek inscriptions on the stone walls of gate G2 are graffiti written by soldiers: for example, inscription 35004_i07 (fig. 32/17) at the bottom of wall 35004 and written in large dotted letters that can be read KELARIC, was certainly carved on that reused stone before it was set into the wall. Most of them, however, are genuine large-sized graffiti, located at a man’s height (c. 80 cm–1 m above threshold level) and roughly carved, apparently with a stone hammer. We present four of them here.

• **Inscription 35002_i01 (fig. 32/14 and fig. 39)** is written on a stone (length 66 cm, height 22 cm) on the exterior side of wall 35002 near the south angle of T13. A striking fact is that the stone is of the same type and measurements (especially the height) as the stone bearing the Latin inscriptions 35003_i02 and 35009_i01 and

the eagle-and-god angle relief: the two shallow frames visible here also have the same measurements. This particular stone, therefore, before it was moved and inscribed in Greek, was located somewhere near stones 35003_i02 and 35009_i01 in another earlier building (or, more probably, in an early phase of the gateway). The frames are bare (Latin inscriptions possibly erased) and the crude Greek graffito, in two lines of large irregular letters (3–9 cm high) does not respect the edges of the frames but runs across them.

The reading is straightforward:

MNHCΘH
XACETOC BAPIC

‘Remember Chasetos Baris!’

Chasetos is a Graecised form of a Semitic name commonly found in Greek inscriptions of the Hawran, for example. Baris is almost certainly a Graecised form of the Latin name Varius. The association of Semitic and Latin names for soldiers of the Roman army in Hegra is not surprising, but it is not known whether this soldier had two names or whether Varius was his father’s name.

• **Inscription 35004_i01 (fig. 32/15 and fig. 40)** is a Greek graffito written on the face of a stretcher (length 27 cm, height 23 cm) in wall 35004, at the southern angle of T13. It is composed of two lines with quite regular letters measuring 7 cm high.

MNHCΘH
KOMOΔOC

‘Remember Komodos!’

This short text contains valuable chronological information. The soldier’s name, Komodos, undoubtedly derives from the Emperor Commodus’ name. It is more probably contemporary with his reign (AD 177–192) rather than of a later date, as his name was no longer popular following his *damnatio memoriae* after his death in AD 192.

• **Inscription 35004_i02 (fig. 32/19 and fig. 41)** is another Greek graffito on another stretcher (length 67 cm, height 21 cm) of wall 35004. It is composed of three lines, with fairly regular letters (4 cm high on line 1, 6 cm on lines 2 and 3).

MNHCΘH .A.HC
MAΞIMOC ZEΔI
AOC OΠIOY AN HI

‘Remember ---- Maximos Zedilos, wherever he may be!’

As for Chasetos Baris, it is difficult to know if this soldier had three names, or if the second and third are the names of his father and grandfather. The first name is as yet undeciphered. The second, in Latin, is Maximus, which was in common use (especially among soldiers), and the third is the theophoric Semitic Zayd’el. The final formula *hopou an èi* complementing the usual *mnèsthèi* is not uncommon; it has already been attested in Madâ’in Sâlih, among Greek inscriptions left by soldiers of the cohort of the Getules, south-east of Jabal Ithlib.³⁸ It also occurs in other graffiti in G2.

• **Inscription 35003_i01 (fig. 32/3 and fig. 42)** is a graffito written on a stone (length 36 cm, height 18 cm) of wall 35003, at the east angle of T12. It is composed of three lines of irregular (and worn) letters, 4.5 cm high.

MNHCΘH
CEΠC . ΦO
CKIAANOC

‘Remember Sept(imos?) Foskianos!’

38. JAUSSEN & SAVIGNAC 1909–1922, vol. II: 648, Greek inscription no. 15.

This soldier's first name is difficult to read: Setis? which seems to be unknown, or it may be Seps, possibly an abbreviation for Septimus. The second name, Fuscianus, sounds Latin rather than Greek, but the alternating of Latin and Semitic names within a group of soldiers is not exceptional, and other graffiti occasionally testify to Greek names. Fuscianus (Phoskianos) is attested (as Folskianos (*sic*), with l – Seoueros, a cavalryman) elsewhere in Madâ'in Sâlih, again in the military monitoring area to the south-east of Jabal Ithlib.³⁹

Thamudic graffito, and drawings

The two main elements that form the stone threshold 35007 have a series of carvings on their wide face, that is to say the upper face during the original use of the sill, and the front (vertical) face after the stone was tilted. Since the carved elements bear no relation to each other and may well not be contemporaneous, it is not certain whether they were all carved when that face was horizontal, or later.

At the south-western end of the south-west stone of 35007 (**figs 32/13 and 43**) is a Semitic graffito (35007_i01) consisting of six or seven letters, written perpendicularly to the length of the stone. The letters are roughly hammered and measure 10 cm high. The text is close to a drawing of a footprint (and might be related to it, or it might have been carved when the face of the stone was vertical). L. Nehmé suggests that it is Thamudic, possibly Thamudic D, to be read vertically. The reading of the letters is proposed as follows: *lnr{h/h'} }blfy (?)*.

The same stone bears a probable (very worn) Nabataean graffito above the long side of the second carved footprint. According to L. Nehmé, it is possible to identify a *š* followed by a *l* or a *b*.

The most obvious feature figured on the sill (**figs 43–44**) is a series of crudely carved (mainly dotted) drawings of 'footprints', drawn parallel to the length of the stone. They are life-size, *c.* 25 cm long and 12 cm wide. On the surface of the south-western part of the sill are two carefully drawn footprints 10 cm apart and facing in opposite directions. They probably do not represent the two feet, completely 'open', of a unique person, since the internal faces of the feet are not facing the same direction. The drawings on the other stone confirm the impression of 'isolated' (but grouped) footprints as here there is only one main footprint as well as less well-defined drawings of two (?) other footprints – randomly placed but all parallel to the length of the stone – or possibly a calf or lower part of the leg (?), and lines of wide dots.

Between the footprints of the south-west stone and those of the north-east stone are two other drawings bearing no apparent relation to the footprints: a thin stylized palm, carved obliquely, and a square divided into four.

The palm is a lucky charm; the square is probably a game. The footprints, which were certainly carved when the surface was horizontal, are more surprising. They do not seem to be part of the tradition of footprints at the entrance of a sacred place, which are usually directed towards it. Unless the whole of Hegra was considered a sacred place (which is not known), there is no apparent reason for this kind of symbolism. Finally, **figure 45** shows a completely different example of a drawn graffito, located on a low course of wall 35004, just behind pier 35068: a quadruped, with thin legs, a rectangular body, a long head, and a short tail, walking to the left. On the right are the faint traces of another quadruped.

Conclusion: chronology, between the first and third centuries AD

Although we are far from possessing a clear understanding of the relative and absolute chronology of Gate 2, we have collected a large amount of data. What is quite clear is that the evidence obtained from this gate is consistent with the chronological data observed earlier on the rampart (before the gate's excavation in 2011). While all the earlier evidence pointed not only to the construction of the rampart (curtain walls, followed by bastions) in the Nabataean first century AD but also to an apparently limited use of it after

39. *Ibidem*, inscription no. 16.

the Nabataean period, the results at Gate 2 demonstrate significant activity (perhaps violent) in the Roman period at one of the major gates of the city.

As far as the relative chronology is concerned, despite the lack of deep soundings and many problems still to be solved during the next season of excavation, the following conclusions can be drawn:

Phase A. a phase of mudbrick architecture with probably a limited use of stones, curtain walls and probably towers and a gateway, and therefore a first gate, the elements of which we have so far not located;

Phase B. a phase with relatively monumental stone architecture (for some walls, including at least 35001–35004 but not as they stand today), and possibly some decoration; the lower part of wall 35001 (with deeper foundations than phase A wall 35005, for maximum solidity), and possibly some evenly built parts of wall 35004, which could date back to this period;

Phase C. following almost certain destruction (or demolishing), a rebuilding phase with a roughly orthogonal layout and the significant reuse of stones in the stone masonry taken from the earlier gate (Latin inscriptions?) or from other buildings in the vicinity. During this phase, the towers were true towers with fully functional doorways;

Phase D. following another probable destructive episode, another refurbishment including repairs to the masonry (see cornice stone reused in the doorjamb of T12 near the north angle of the tower), fill blocking the doorways (including a cornice stone of the same type), infilling of the towers converted into bastions, installation of a new, poor-quality, refurbished, arrangement of threshold and doorjambs for the gate. The repairs, with mudbricks and clay, of the ‘space’ created in the exterior of wall 35001 by a collapse, may be associated with this series of rebuilding and consolidation;

Phase E. the gate is finally put out of use and replaced by a vertically tilted threshold stone (without doors) and a small stone bench.

It is difficult to establish absolute chronology based on numismatic evidence: among the sixteen bronze coins (or fragments) discovered at Gate 2, three (35042_C01 and C02, 35029_C01) have not yet been identified; four are (probably) part of the local second–first-century BC coinage (Athena/owl), and therefore are of no interest for an area in which building only started in the first century AD; four were minted by Aretas IV; three are almost illegible (one may be Hellenistic or Nabataean, one Hellenistic or Roman, and one Roman); two are completely illegible.

This clearly does not fully correspond with the evidence of the inscriptions: among them, the four Latin inscriptions mentioned above (35004_i05–6; 35003_i02 + 35009_i01), all reused in the masonry of Phase C, and possibly first used in Phase B, are later than AD 106. In addition, the four examples of Greek graffiti written on the walls of Phase C are clearly also Roman in date, due to the presence of Latin names in all of the anthroponyms. More precisely, it was suggested that the name Komodos, in graffito 35004_i01, must be dated between AD 177 and 192. At that time, the masonry of Phase C already existed and was not yet destroyed. The Athena/owl coins (probably still in use in the first century AD) as well as the Aretas IV coins fit well with Phase A, but it would be helpful to have second-century coins that could help to date Phases B and C. Unfortunately, none have been found.

The pottery evidence is not easy to interpret in the context of the gate, where the material is not abundant and where, particularly in the gateway, the sherds are extremely small. According to ceramologists Y. Gerber and C. Durand, the majority of the *loci* provided first-century AD/early second-century AD material. Post-Nabataean pottery assemblages are present, however, such as 35042 (the occupation layer inside T12 before it was infilled), which did not contain a single Nabataean sherd, and 35018 in the gateway, which provides a probably late second-/early third-century AD assemblage.

Finally, a ¹⁴C dating provides a benchmark for dating elements of the gate. A camel scapula was discovered in 2011 in *locus* 35022 (**fig. 13**) in sounding B at 782.58 m asl, against the stone masonry of wall 35001, and in a deposit apparently corresponding to natural accumulations. It is at mid-height of the preserved part of wall 35001, much higher than the floors reasonably associated to phases A and B, and perhaps higher than

the Phase C floor in the area (considered to be 782.50 m asl). The ^{14}C date⁴⁰ indicates a dating of AD 25–212 (2 sigma) and probably AD 25–177 (1 sigma) signifying that AD 212 (and probably AD 177) is a *terminus ante quem* for the stone masonry of the front wall of the gate.

In summary, we would like to propose the following as a working hypothesis: Phase A is Nabataean (first century AD); Phase B is Roman (shortly after the annexation, early second century AD); Phase C took place some time during the second century (possibly *c.* AD 175) assuming a relationship between the chronology in Area 35 and the textual evidence provided by the Latin inscription found in 2003 near IGN 132 (restoration of the rampart or of some other significant building *c.* AD 175–177); Phase D and the final Phase E are not much later, as evidenced by the absence of pottery and of any other clearly dated artefact later than the beginning of the third century.

Acknowledgements

For the results presented here, I would like to express my gratitude to Jean Humbert for his unceasing cooperation; Paul Courbon for his help in the topographical survey of the rampart; Christophe Benech for his indications based on his geophysical survey, near Area 35 and between Areas 32 and 33; Eric Fouache for his geomorphological expertise between Areas 32 and 33; Wael Abu Azizeh for his help with his dedicated aerial ‘kite’ photographs of Areas 34 and 36; Muhammad Ja‘far ‘Issa and ‘Abbas Ahmad Salman for their contributions to the first soundings in Area 33 (2009); Abdulrahman al-Suhaibani for his contribution to two soundings in Area 35 (2011); Thomas Bauzou and Zbigniew Fiema for their help in deciphering two of the Latin inscriptions discovered in Area 35; Yann Gayet for a series of photographs of one of these inscriptions, and last but not least to Helen Knox for revising the English.

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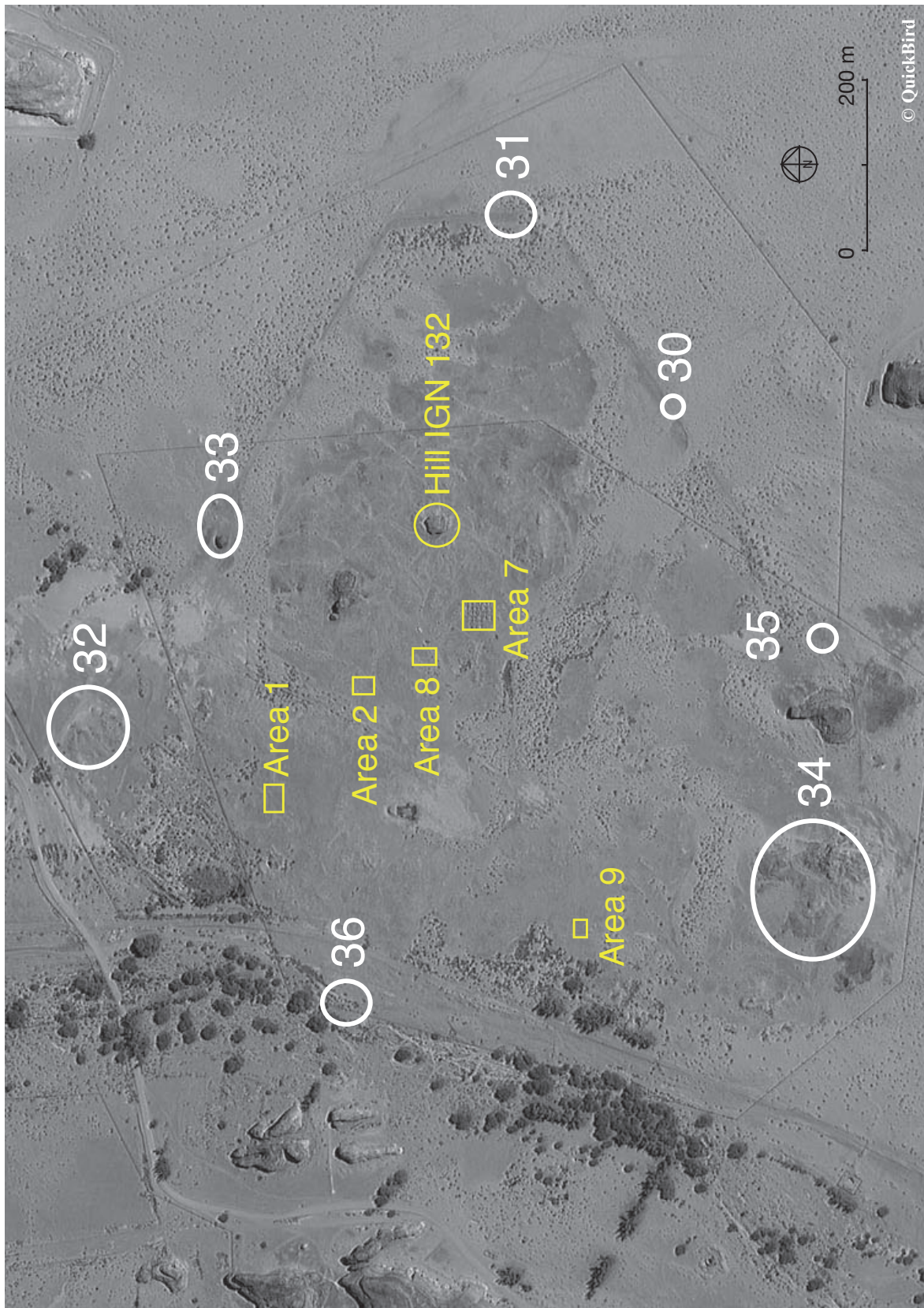


Fig. 1. Location of areas of the rampart selected for detailed study and/or sounding (white circles) and location of other excavation areas (in yellow). Note the clear traces of the rampart on its south-eastern half (F. Villeneuve & J. Humbert 2013).

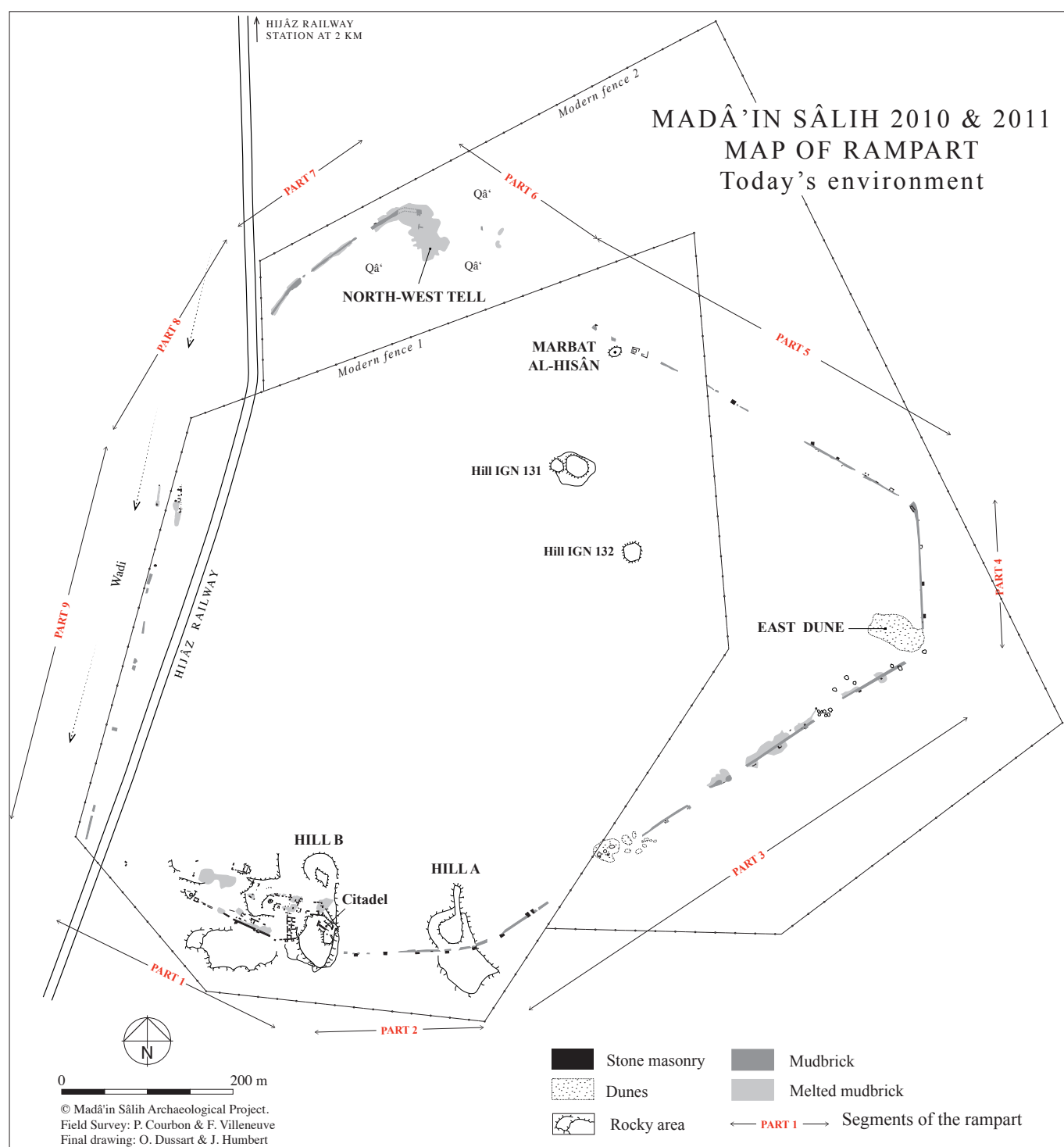


Fig. 2. Map of the rampart with the location of the Hijâz railway, modern metal fences around the Residential Area, rocky hills, dunes and wadi (F. Villeneuve, P. Courbon, S. Eliès, O. Dussart & J. Humbert 2010–2013).

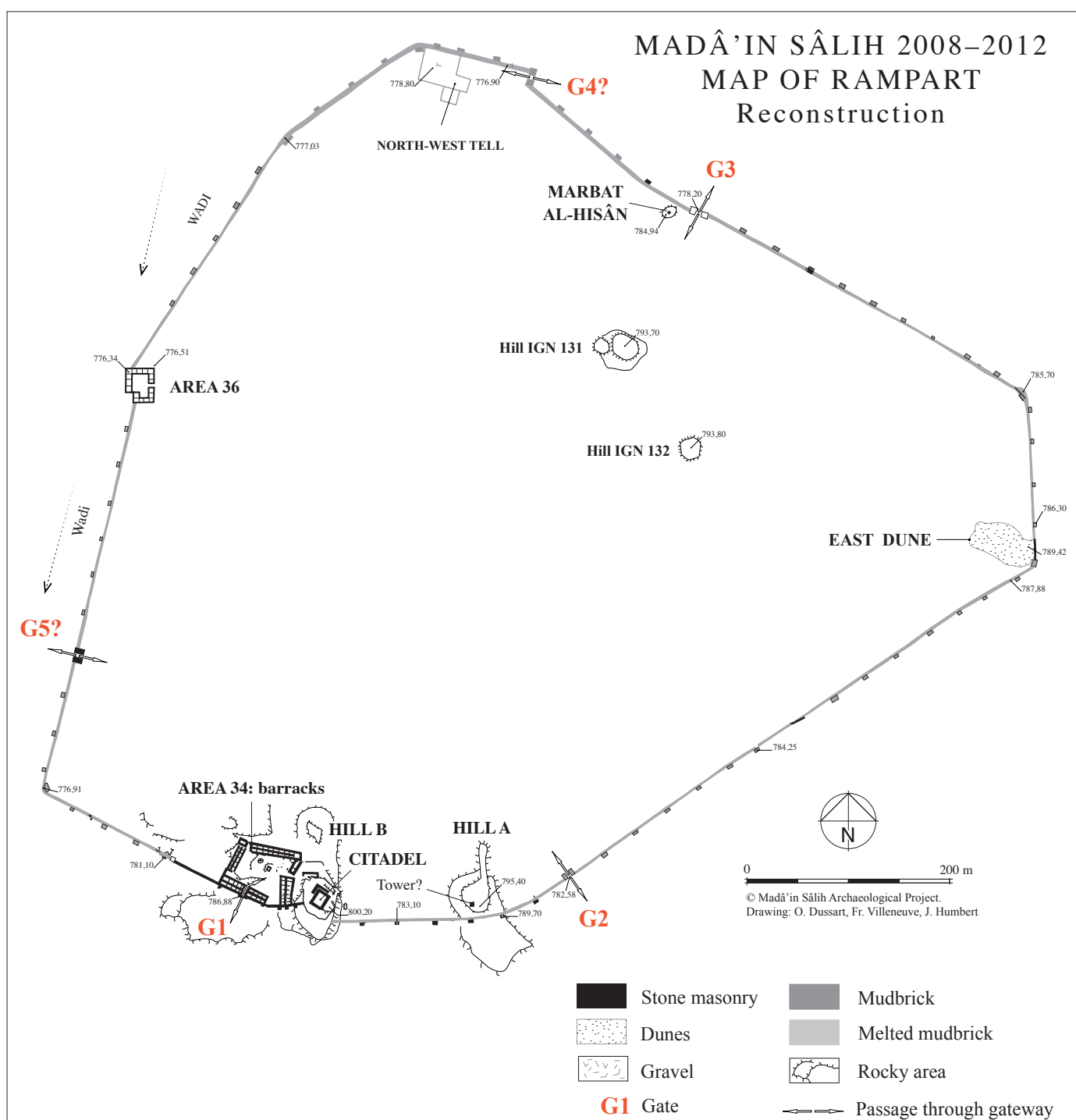


Fig. 3. Proposed reconstruction of the layout of the rampart (F. Villeneuve & J. Humbert 2013).



Fig. 4. Archaeological map of Hill A, with the rampart running to the south (J. Humbert & F. Villeneuve 2011–2013).



Fig. 5. Hill A, from the west: note the ‘human-like’ profile of its northern end (04/02/2014, 10 A.M.).

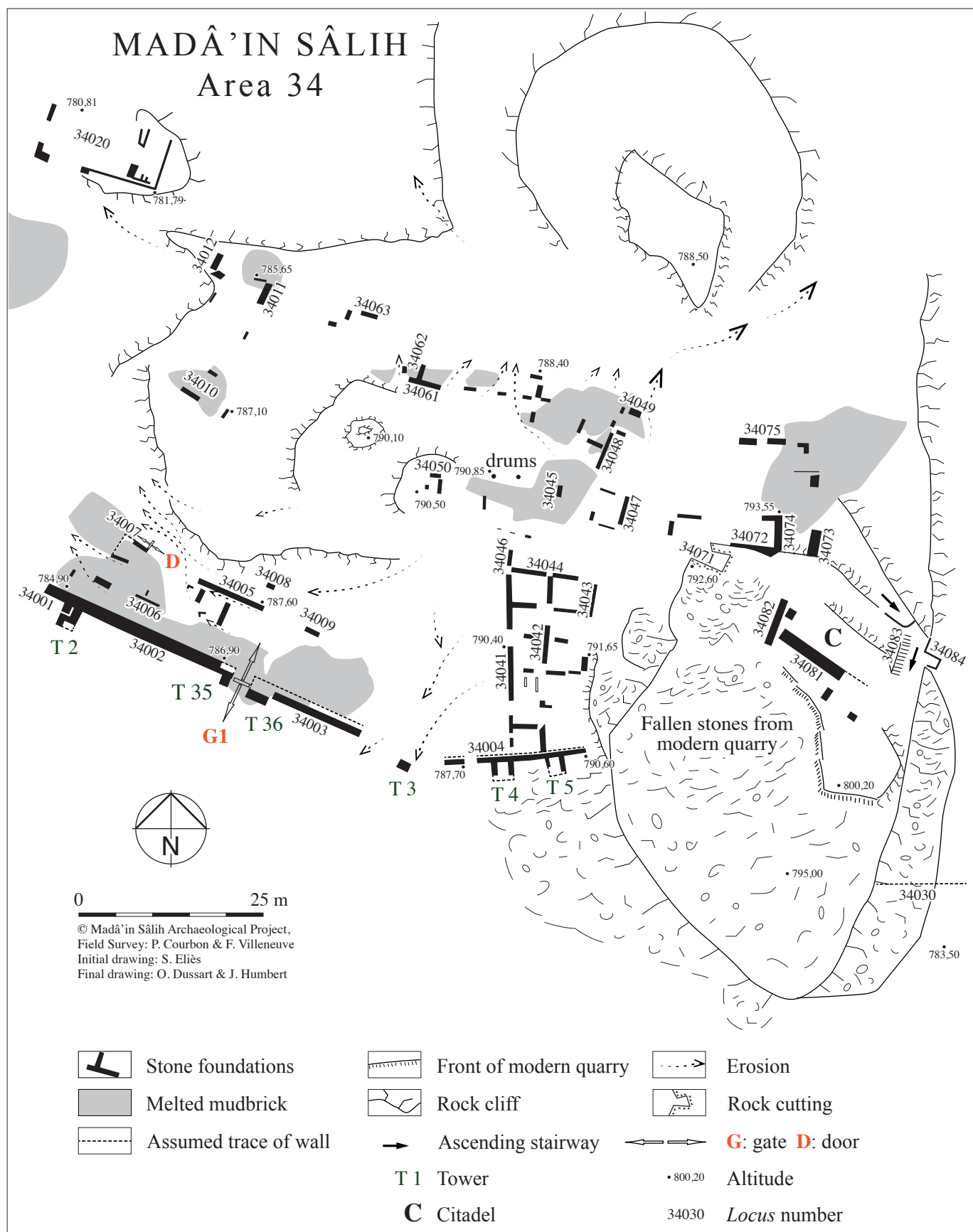


Fig. 6. Map of the ruins in Area 34, probable military camp on the northern side of the southern part of the rampart, with Hill B to the south-east (F. Villeneuve, P. Courbon, J. Humbert, 2010–2013).

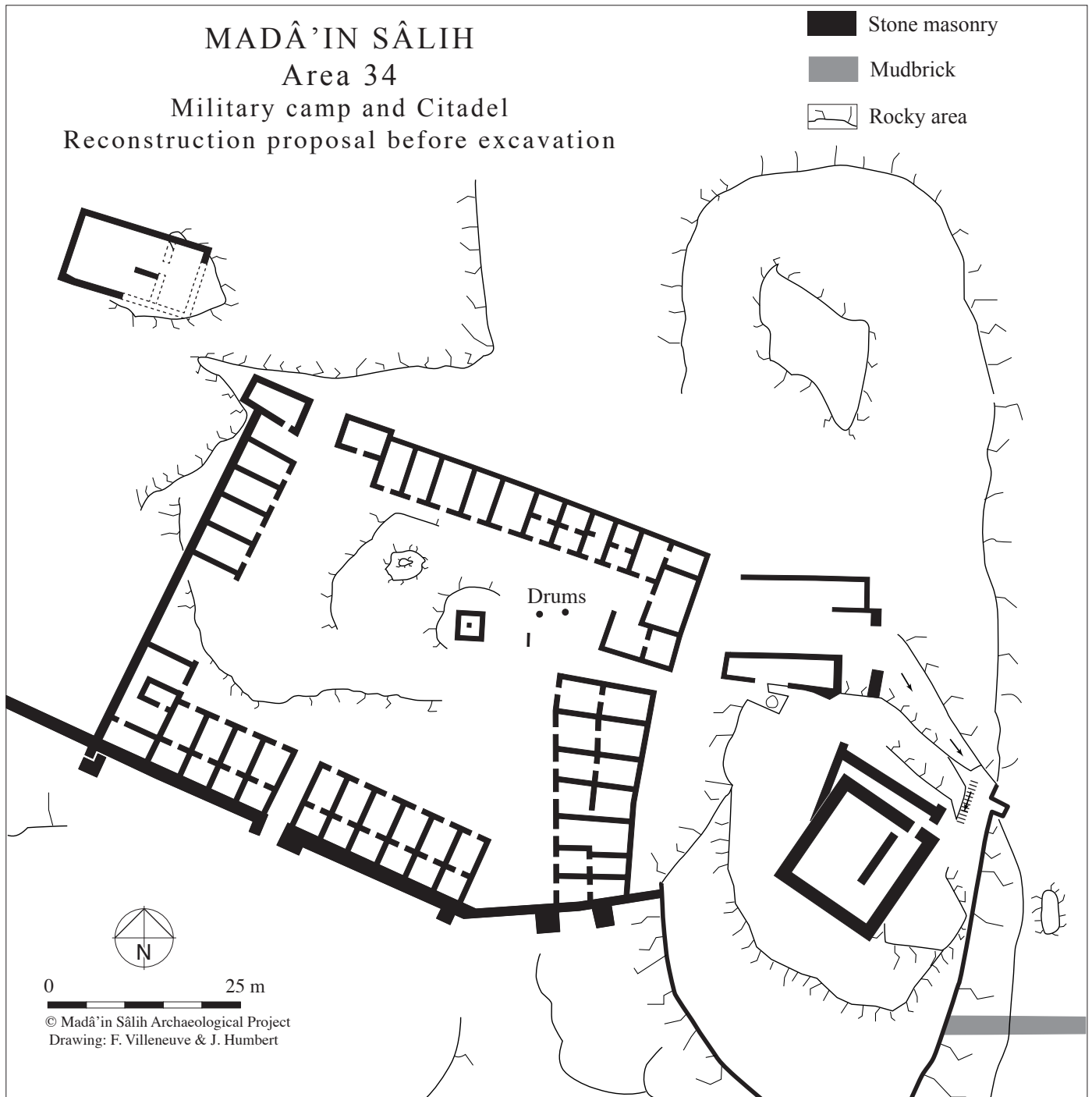


Fig. 7. Proposed reconstruction (layout) of the ancient (Nabataean?) military camp in Area 34 (F. Villeneuve & J. Humbert, 2013).



Fig. 8. Ceramic water pipe on the ground in the north-eastern sector of Area 34, near Hill B.



Fig. 9. Fragment of a basalt movable circular grinding stone, Area 34, sector 34020.

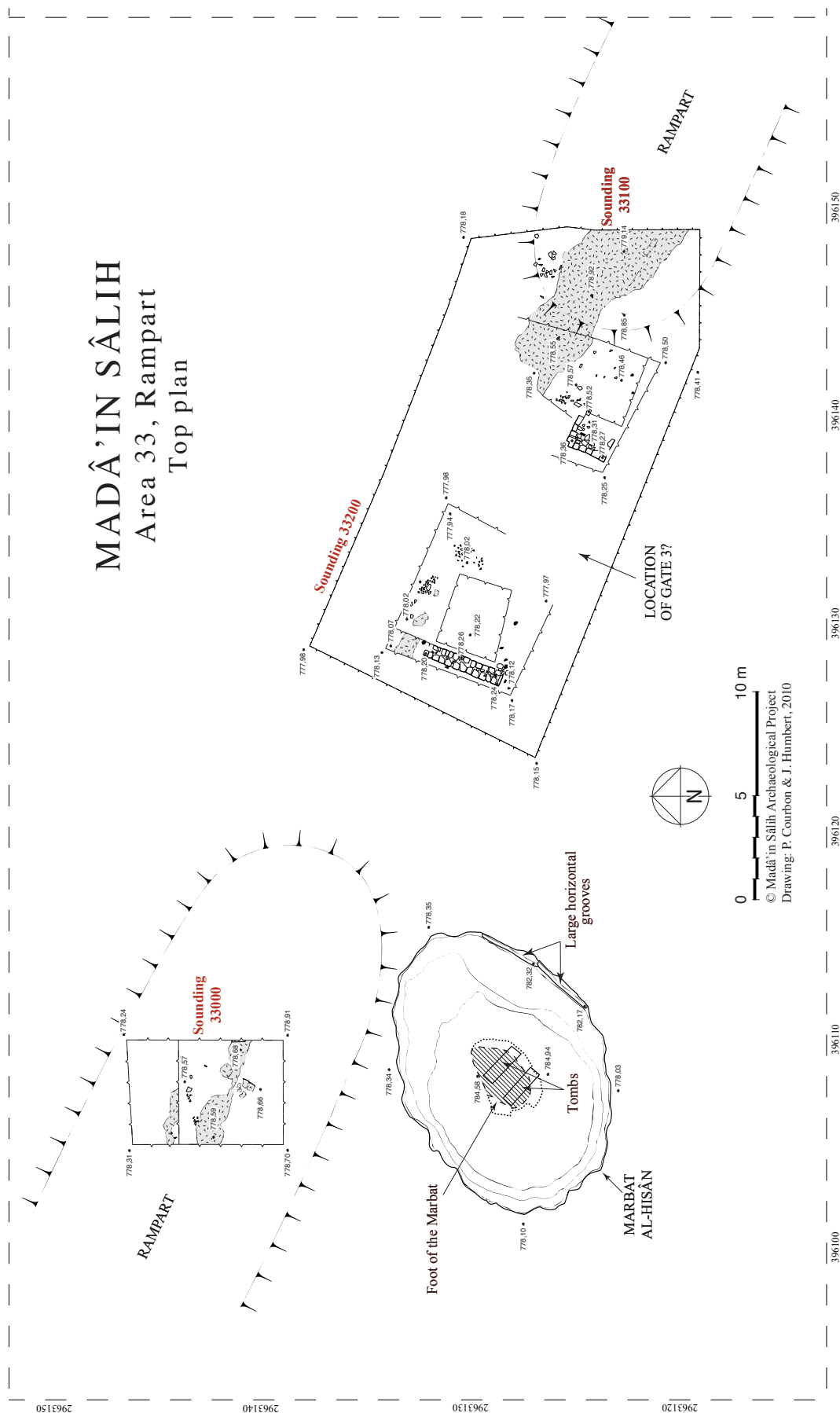


Fig. 10. Map of Area 33, showing the remains of Gate 3 in section 5 of the rampart (J. Humbert, F. Villeneuve, P. Courbon, 2010).

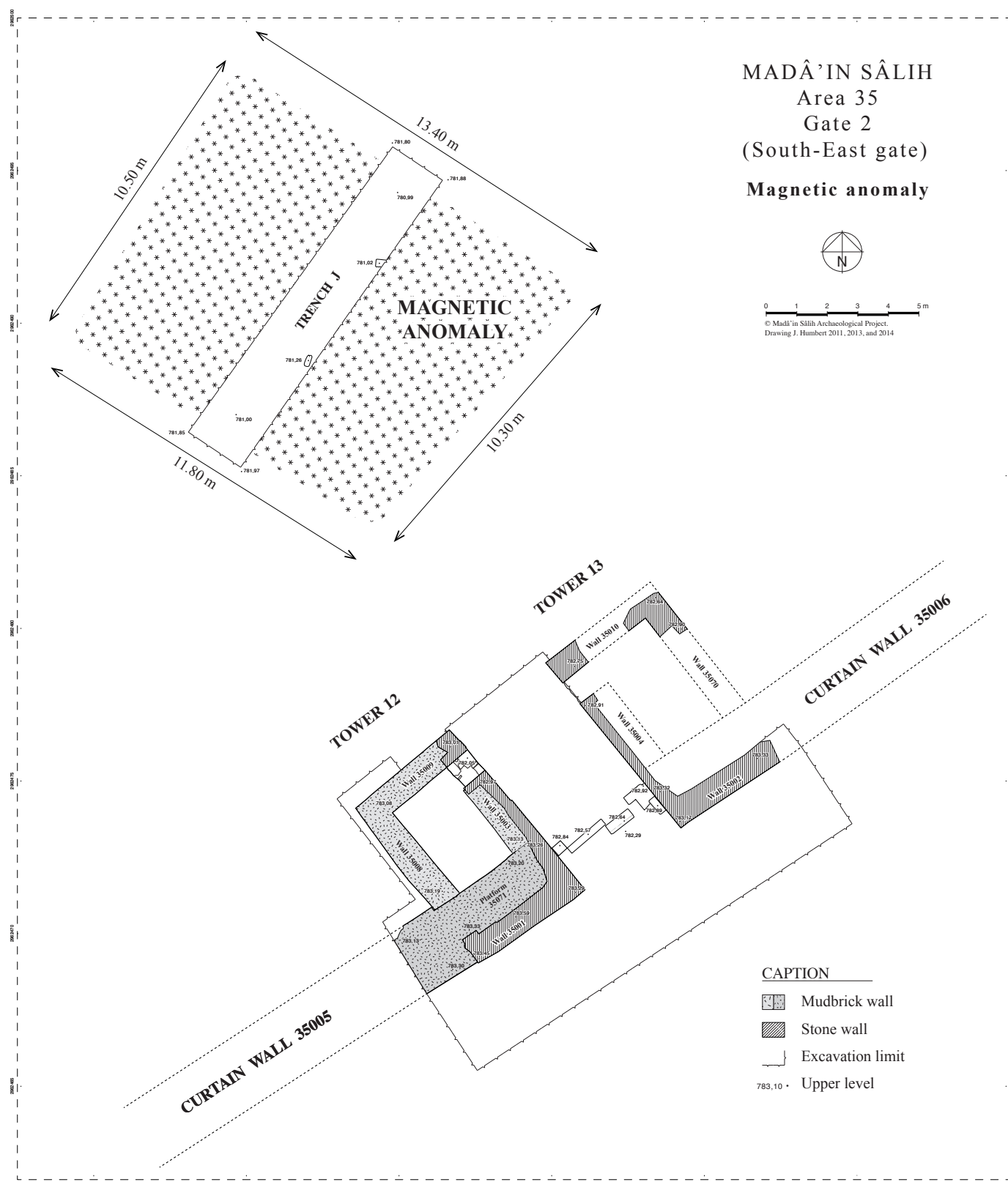


Fig. 11. Map of Area 35, including the South-Eastern gate G2 and the magnetic anomaly to the north-west (J. Humbert, C. Benech, 2011–2014).

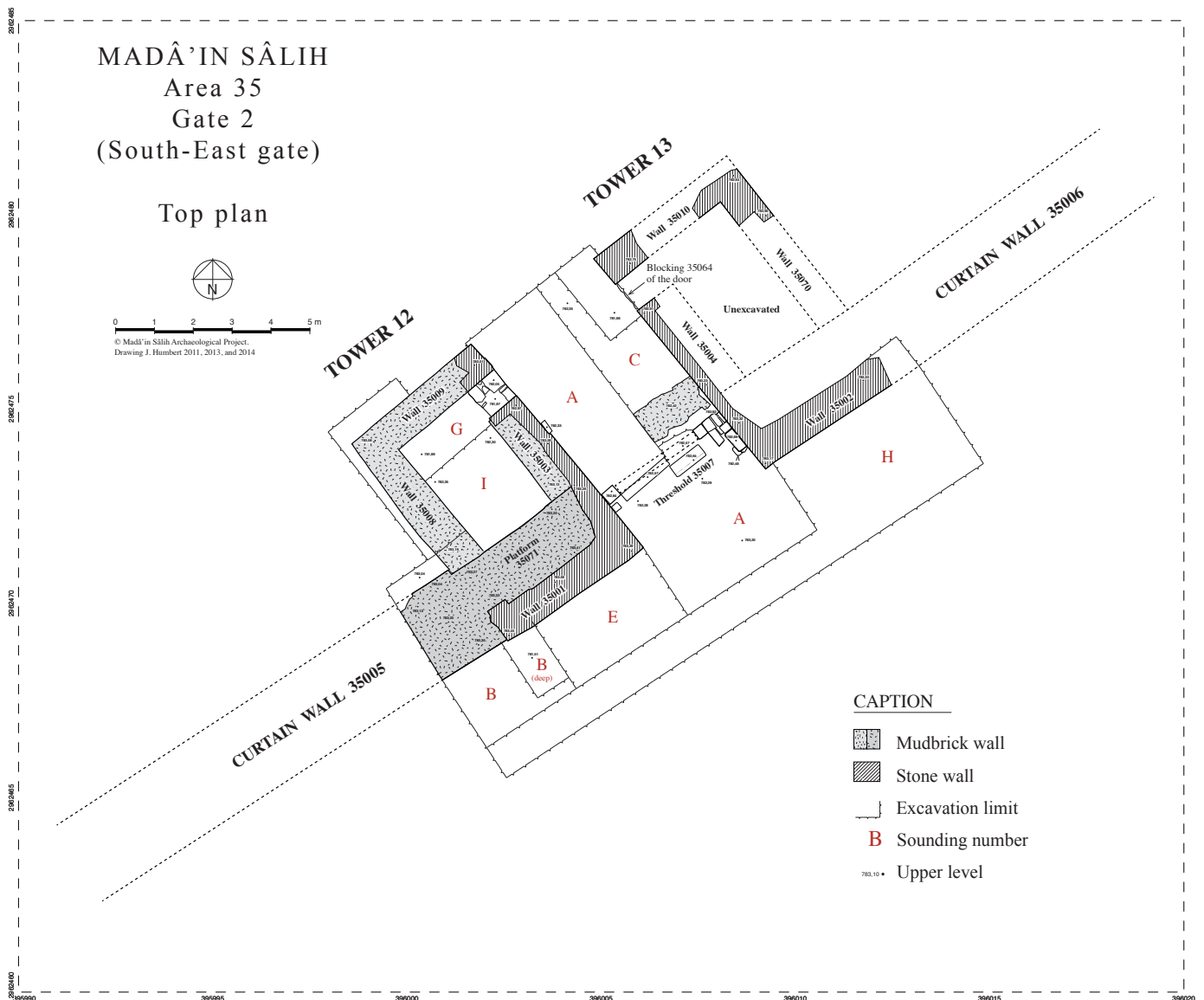


Fig. 12. Map of gate G2 with the location of soundings, trenches, walls and architectural *loci* (J. Humbert, 2011–2014).

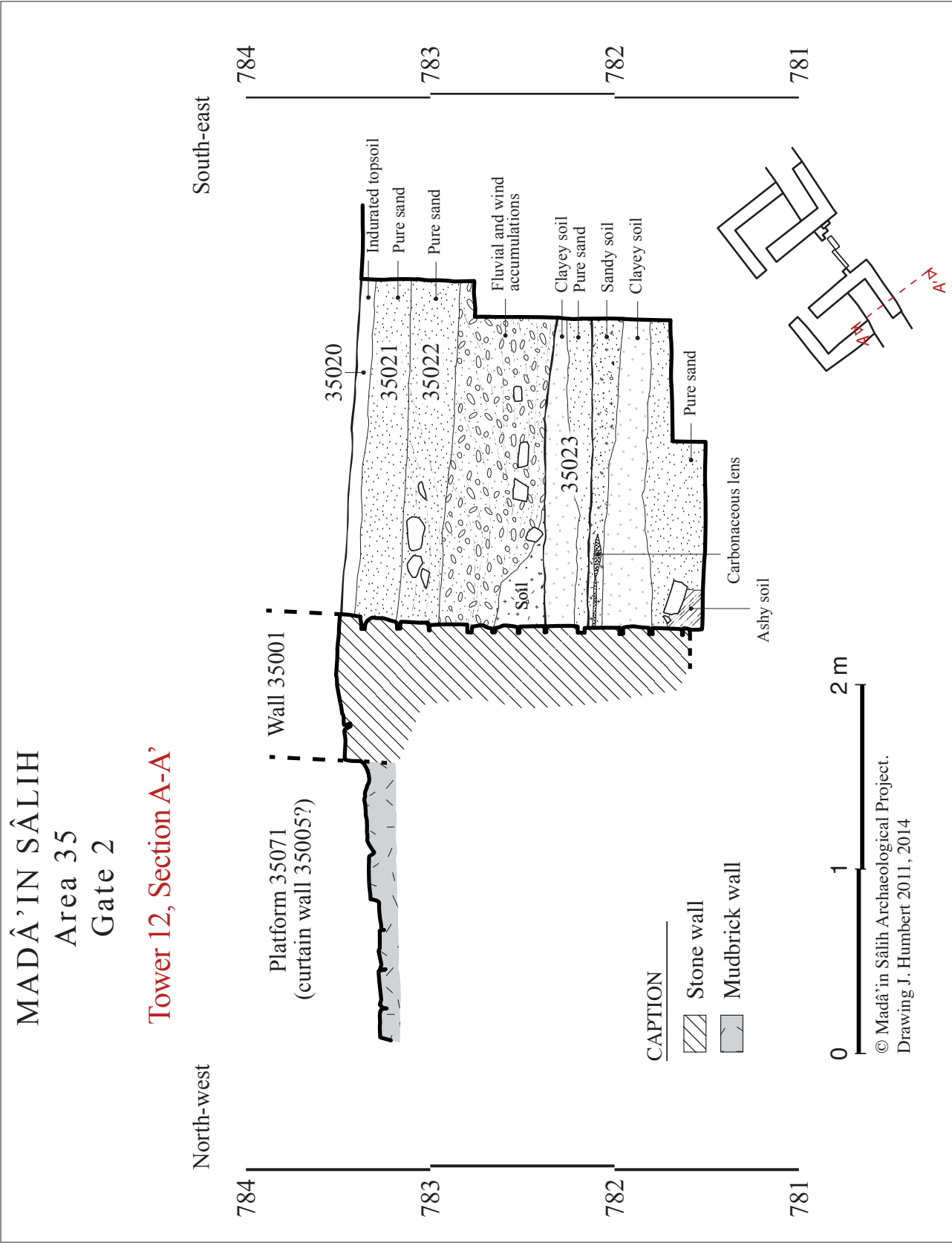
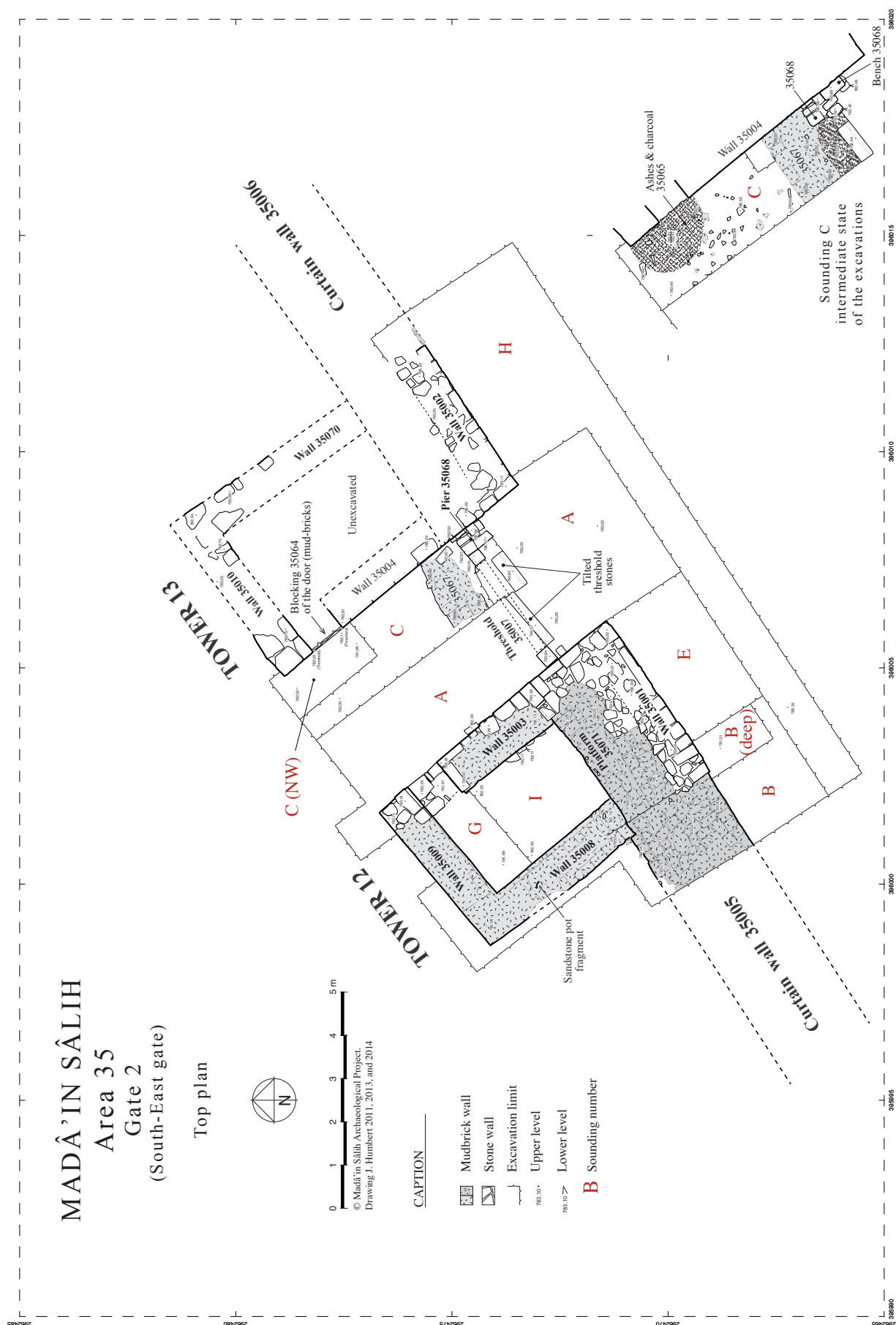


Fig. 13. Section (stratigraphy and architecture) on front wall of Tower T12 (J. Humbert, 2014).



Fig. 14. Trench J in Area 35, across ‘anomaly’ detected by geomagnetic survey, towards the south-south-west. Exterior floor 35092 at the bottom.



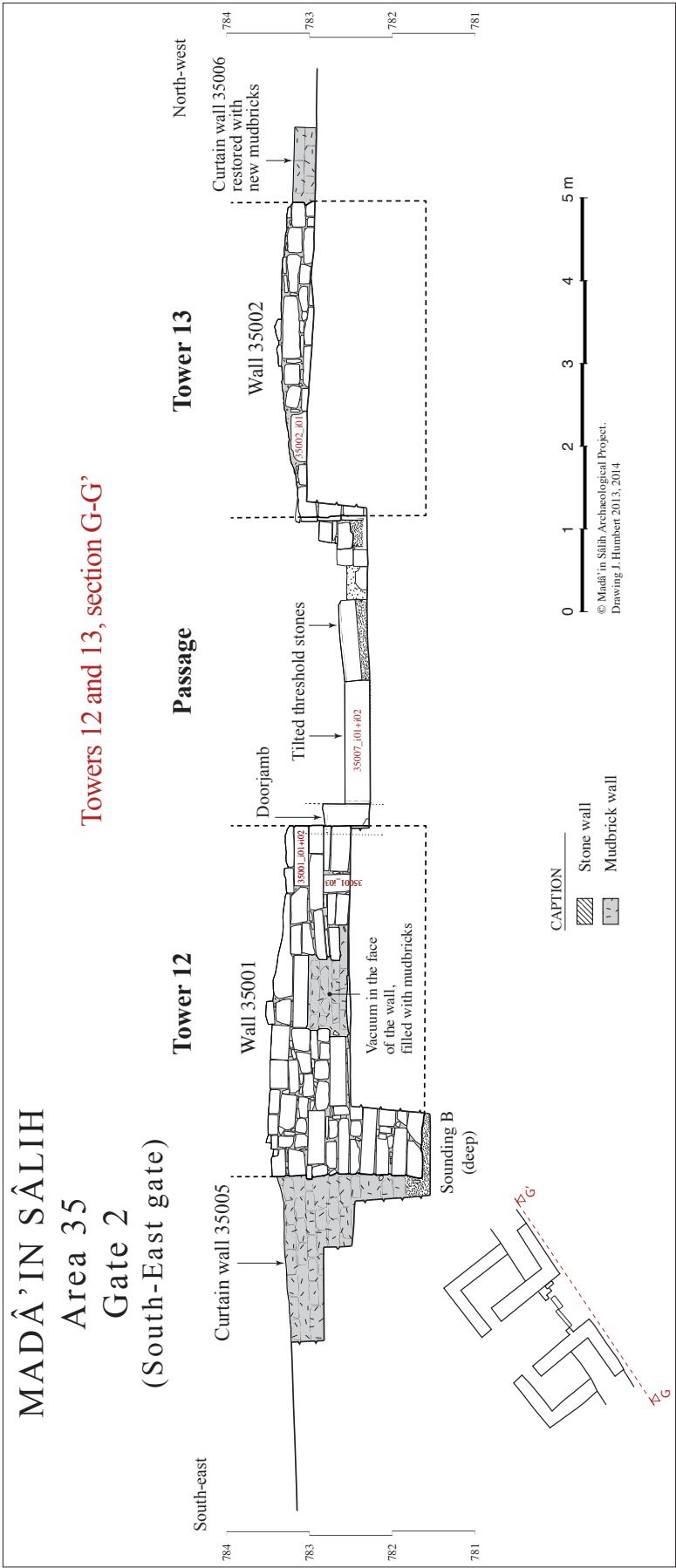


Fig. 16. Front view drawing of the front walls of gate G2 (state of excavation on February 15/02/2014; J. Humbert, 2014).



Fig. 17. Soundings B and 'B deep' in front of curtain wall 35005 (left) and front wall 35001 of gate G2 (right), looking north-west (25/02/2011).



Fig. 18. Wall 35001 (front wall of Tower 12), looking north-west (14/02/2014).



Fig. 19. Nabataean inscription 35001_i03, here shown horizontally, reused vertically in wall 35001 near the east corner; height 21 cm, length 32 cm.



Fig. 20. Wall 35003 inside Tower 12: worn mudbrick masonry over a laid bed of flat stones. On the left, the doorway leading to the main gateway, looking north (14/02/2014).



Fig. 21. Wall 35004 facing the gateway, looking north-east (14/02/2014).

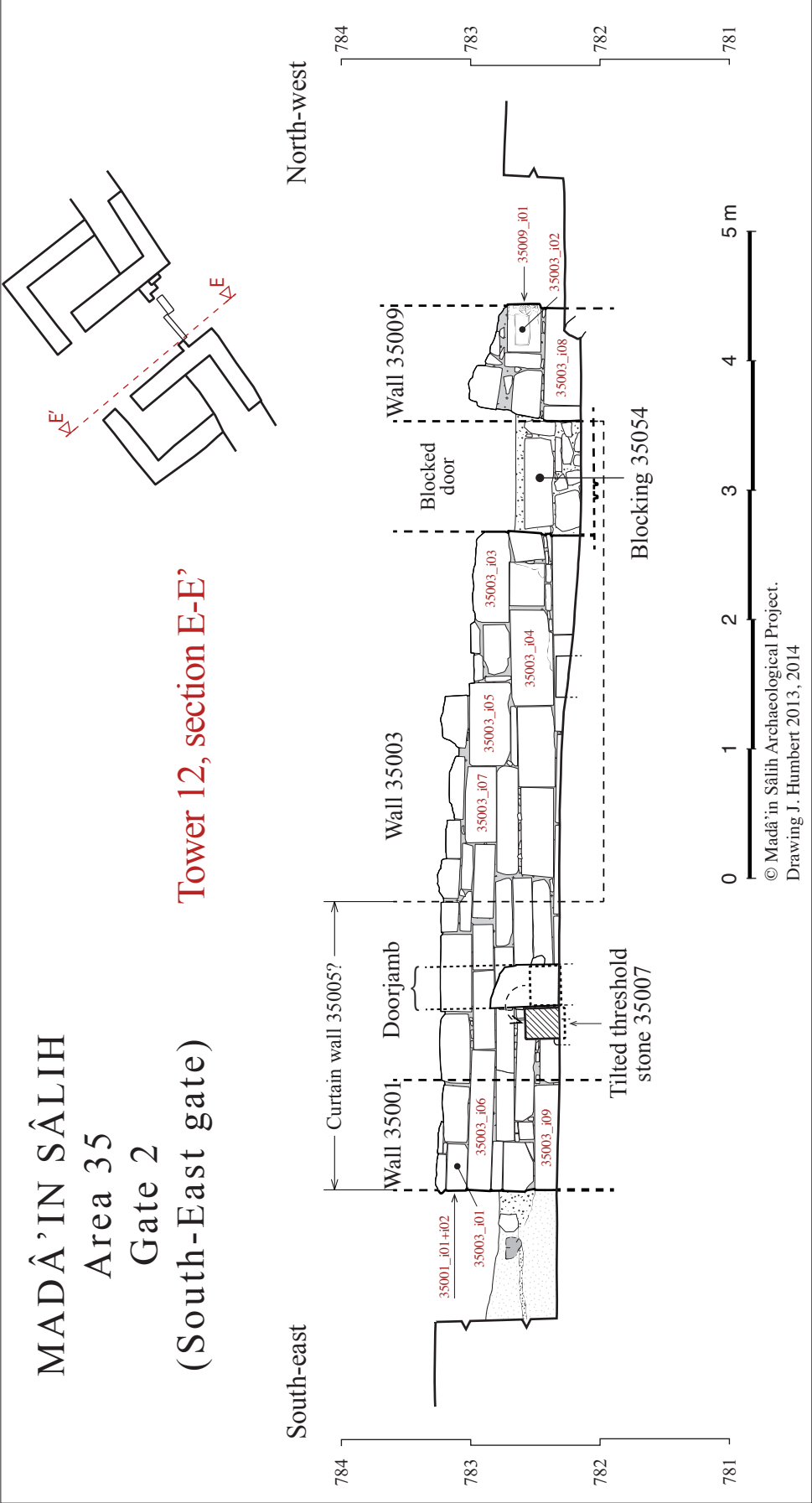


Fig. 22. Front view drawing of wall 35003, facing the gateway (state of excavation on 15/02/2014; J. Humbert, 2014).

Fig. 23. Stone bearing a schematic drawing of a camel walking left (on left of photograph), which was reused upside down in wall 35004 (NB: the photograph is shown upside down so that the camel can be seen the right way up). Greek letters were possibly written on the stone *after* its reuse, thus in the other direction.

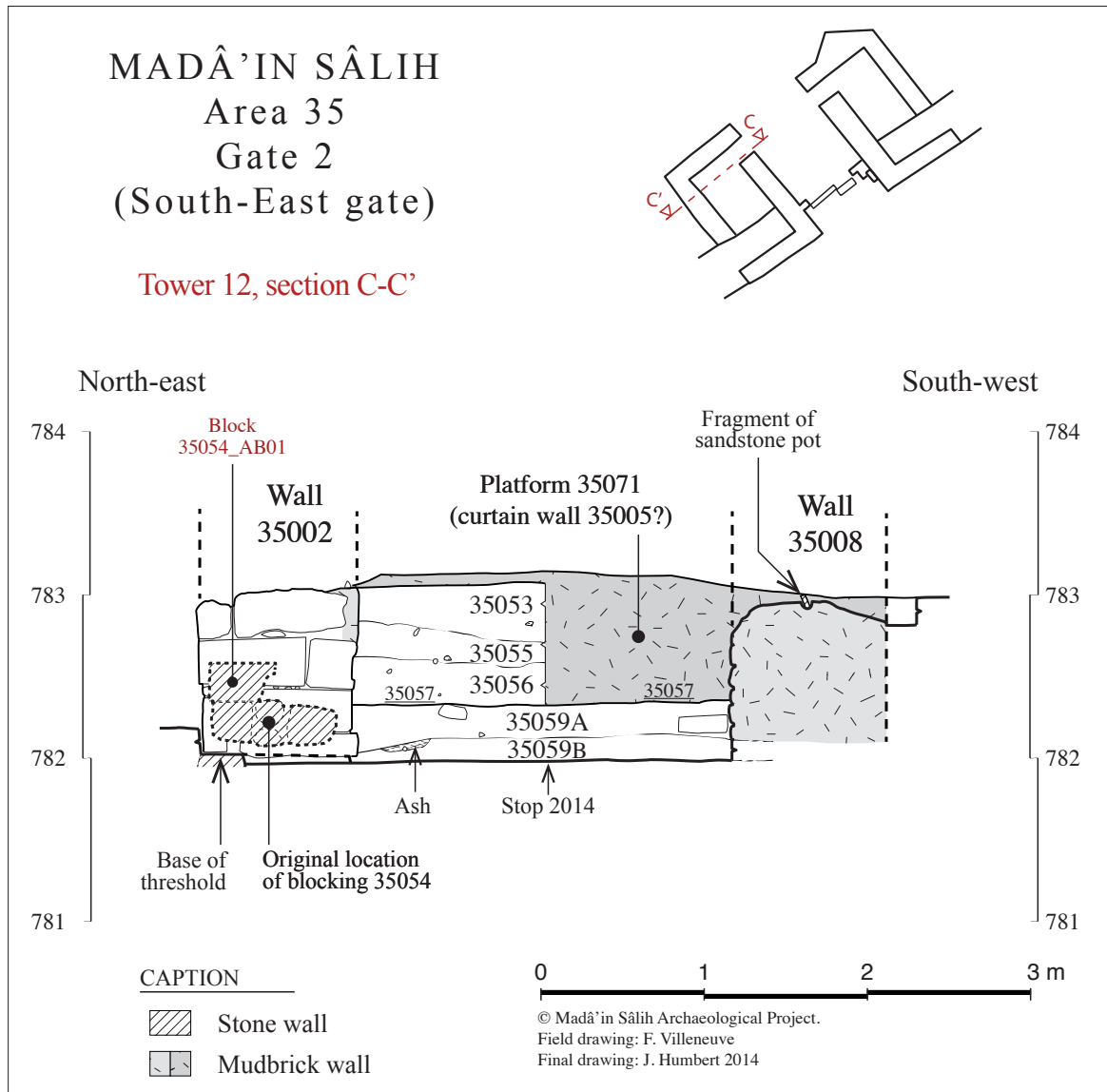


Fig. 24. Composite stratigraphic section in Tower 12, north-east/south-west. The section was drawn after the removal of the south-west half of levels 35053–35056 (F. Villeneuve & J. Humbert, 2014).



Fig. 25. Tower 12, east corner. Small shallow stone square basin, or mortise, before the 2014 excavation of the fill of the tower: the right face (mudbricks) of wall 35003 is at the right end of the scale; the north-west face of platform 35071, 5 cm beyond the scale on the right of the stone basin; view looking south-east (25/02/2011).

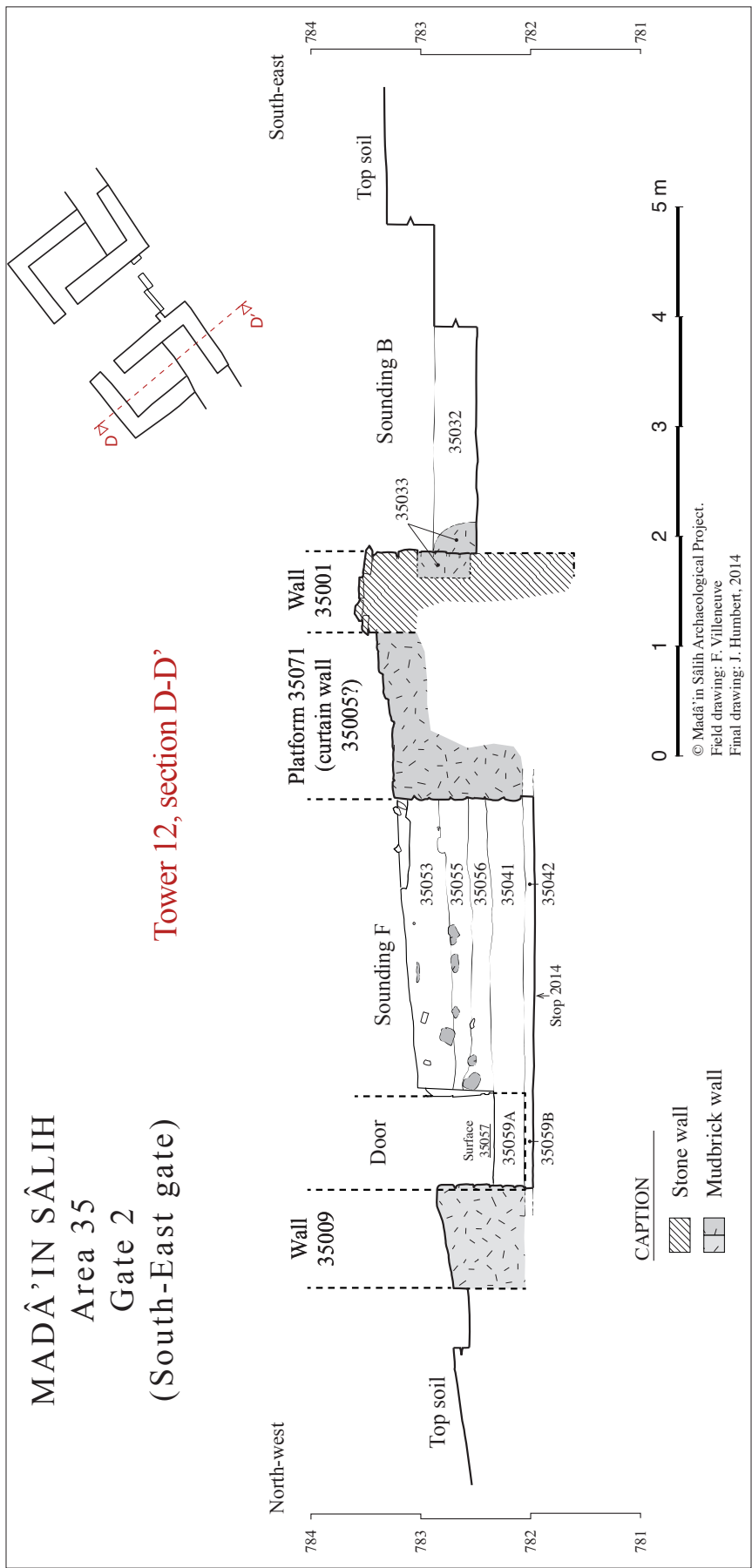


Fig. 26. Architectural and stratigraphic section across Tower 12 and the area in front of it, north-west/south-east (state of excavation 15/02/2014; J. Humbert, 2014).



Fig. 27. Elements of the late stone threshold and doorjambs of the gate, restored to their original position, looking south-west (14/02/2014).

Fig. 28. Late threshold 35007 (two elements), after tilting, and (later) bench 35062 against wall 35004 of Tower 13, looking north (25/02/2011).



Fig. 29. Cornice stone 35054_AB01, found reused in the fill blocking the doorway of Tower 12.

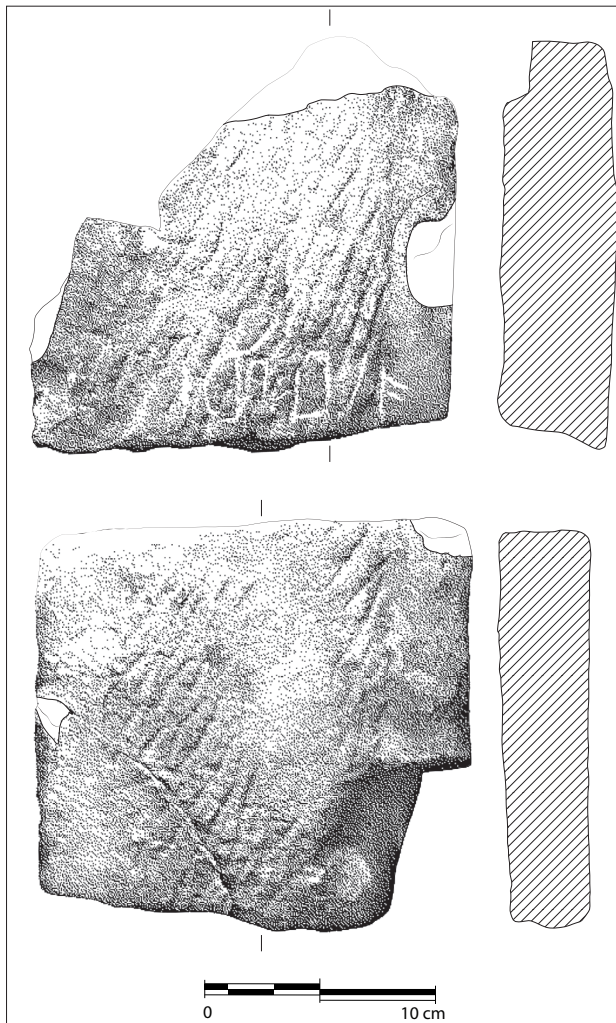
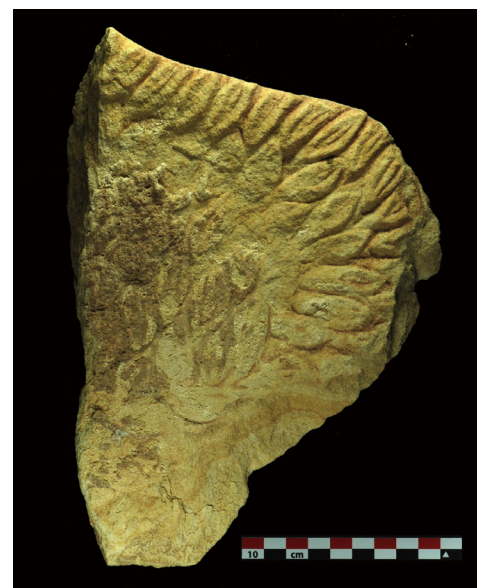


Fig. 30. Fragments of pilaster plates from fill blocking doorway 35054 (bottom), and from destruction layer 35041 (top) with Nabatean graffito 35041_i01 (R. Douaud 2014).

Fig. 31. Fragment of sculpture 35060_AB01 depicting an eagle wing.



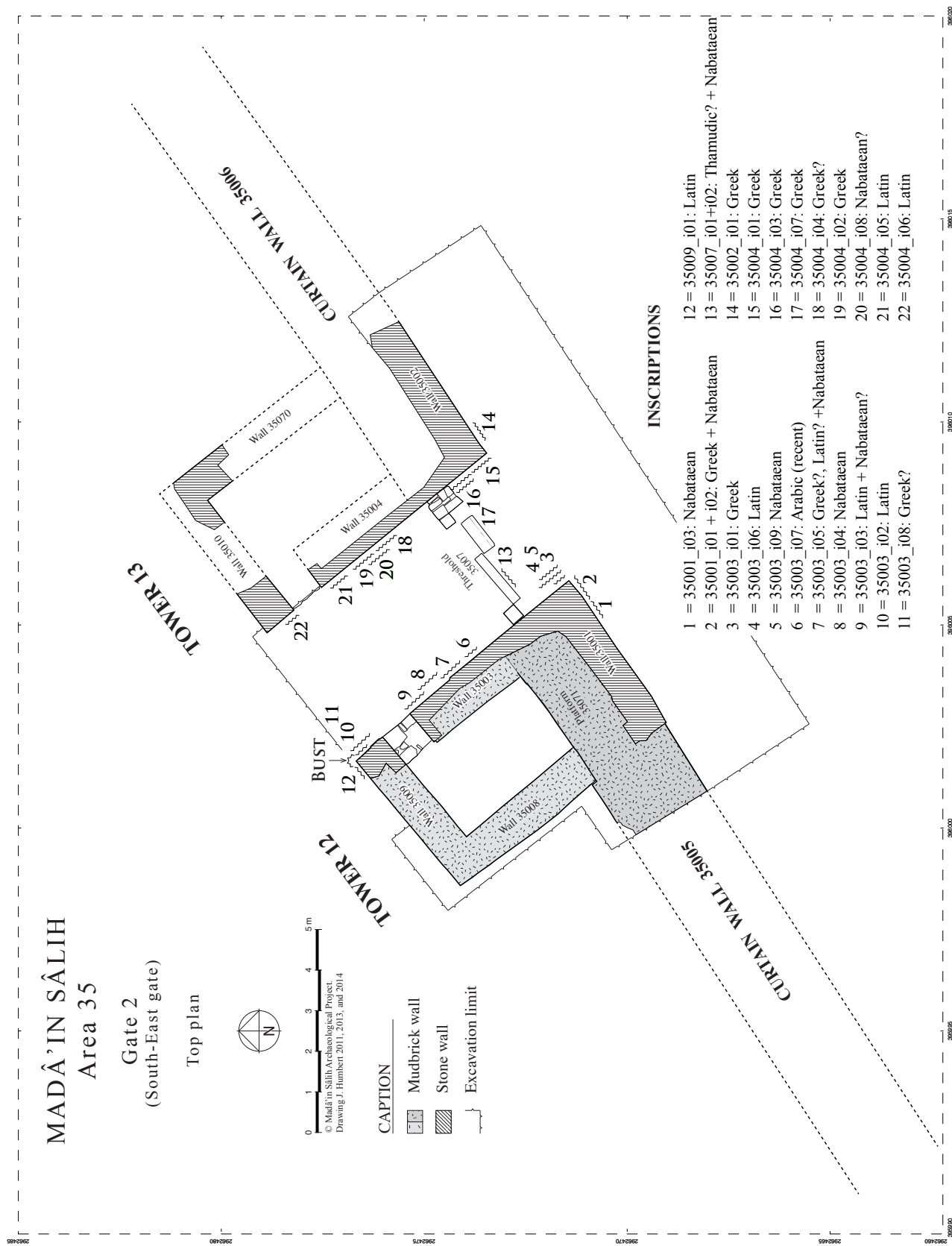


Fig. 32. Map of gate G2 showing the location of the inscriptions (J. Humbert, 2011–2014).

Fig. 33. Nabataean inscription 35018_i01.

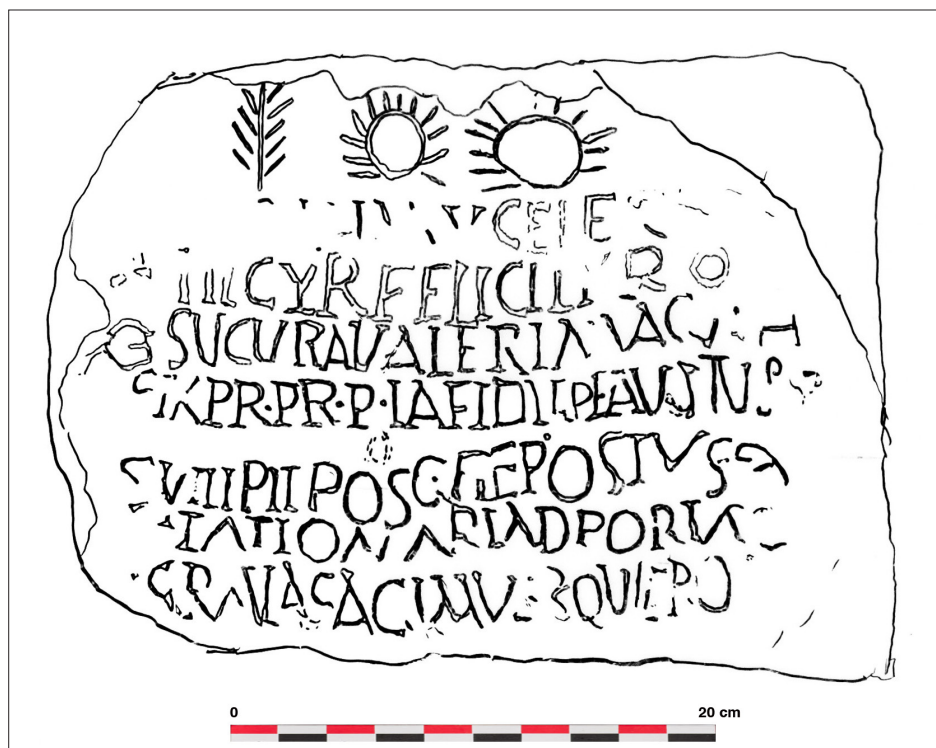
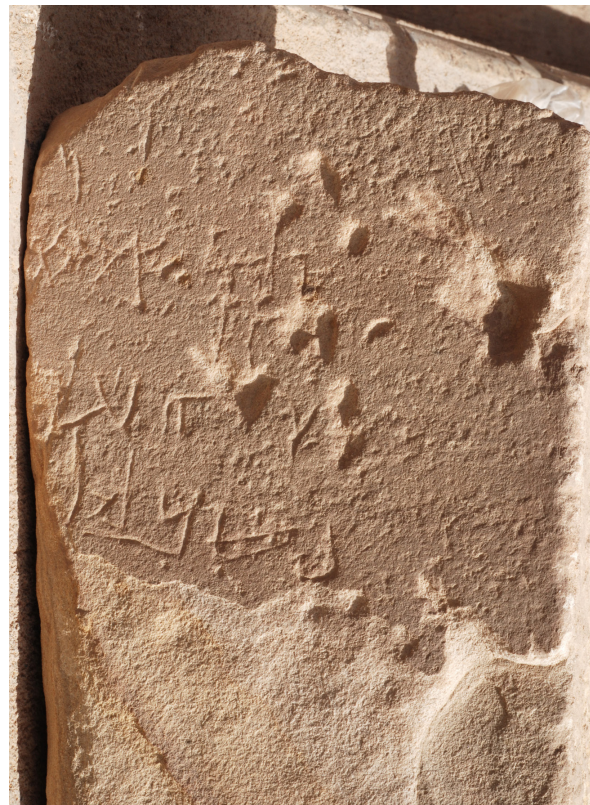


Fig. 34. Latin inscription 35004_i06 reused in wall 35004, north-west doorjamb (reading T. Bauzou, Z. T. Fiema, and F. Villeneuve, drawing J. Humbert, 2014).

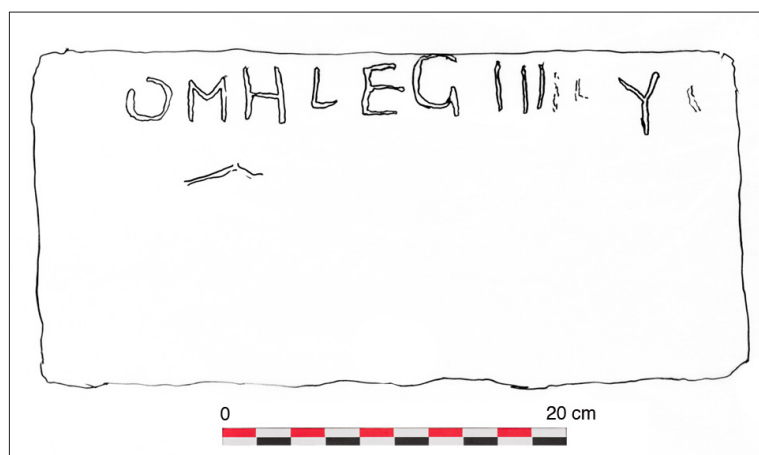


Fig. 35. Latin fragmentary inscription 35004_i05 reused in wall 35004, south-east doorjamb (reading F. Villeneuve, drawing J. Humbert, 2014).



Fig. 36. Stone reused in the north corner of T12 (bottom), with a relief, two Latin inscriptions, and one empty frame.

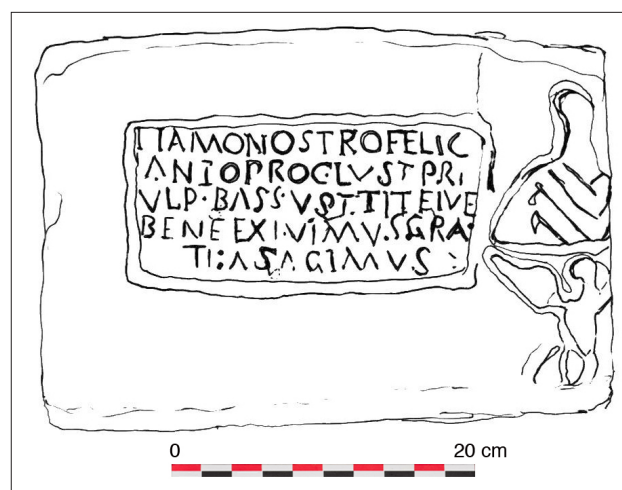


Fig. 37. Reused stone in the north corner of T12, Latin inscription 35003_i02 (reading T. Bauzou, Z. T. Fiema, and F. Villeneuve, drawing J. Humbert, 2013).

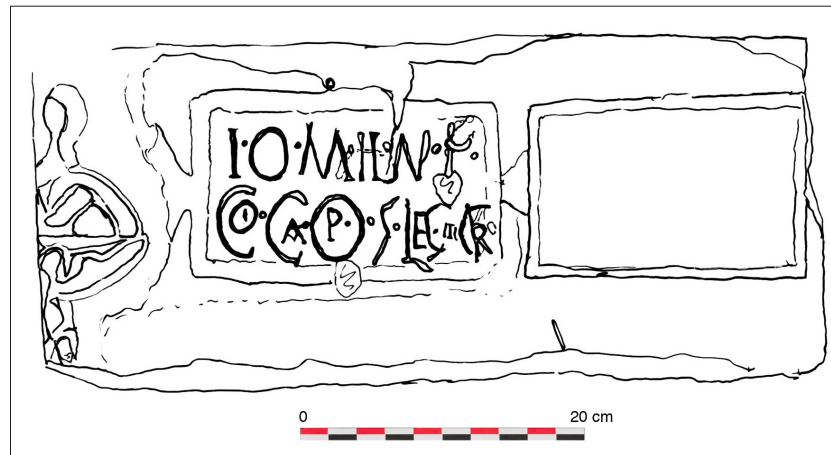


Fig. 38. Reused stone in the north corner of T12, Latin inscription 35009_i01 (reading Z. T. Fiema, L. Tholbecq, and F. Villeneuve, drawing J. Humbert, 2013).

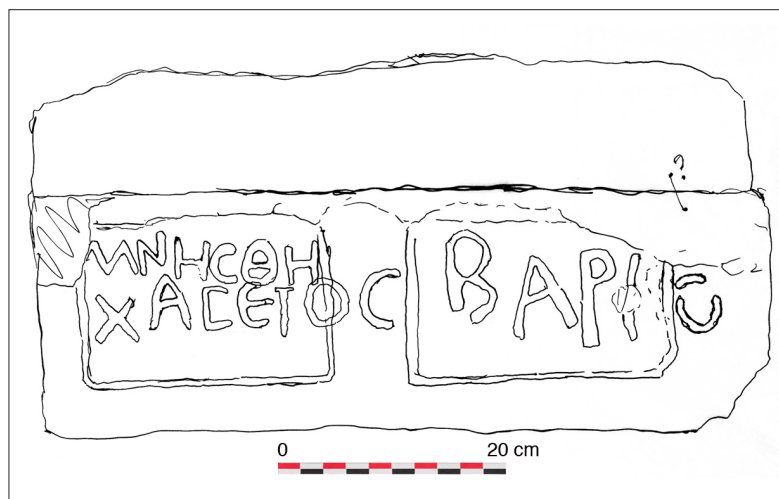


Fig. 39. Greek graffito 35002_i01 on reused stone with empty (erased?) frames in wall 35002 (reading F. Villeneuve, drawing J. Humbert, 2014).

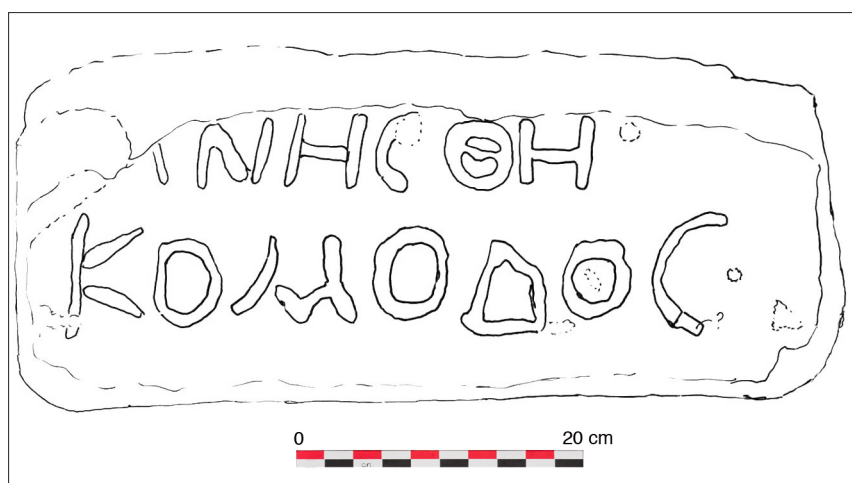


Fig. 40. Greek graffito 35004_i01 on wall 35004, in the south corner of T13 (reading F. Villeneuve, drawing J. Humbert, 2013).

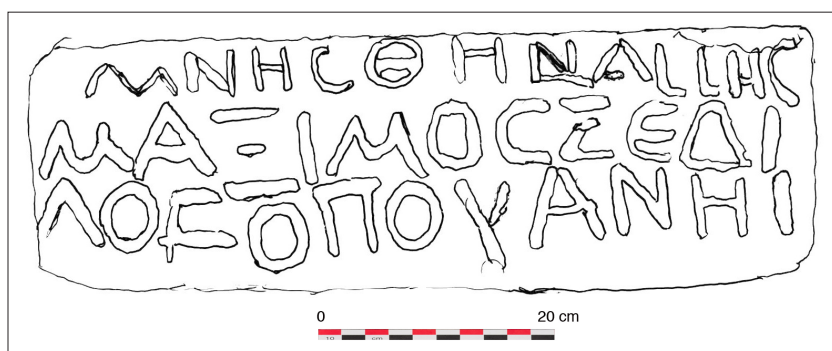


Fig. 41. Greek graffito 35004_i02 on wall 35004 (reading F. Villeneuve, drawing J. Humbert, 2013).

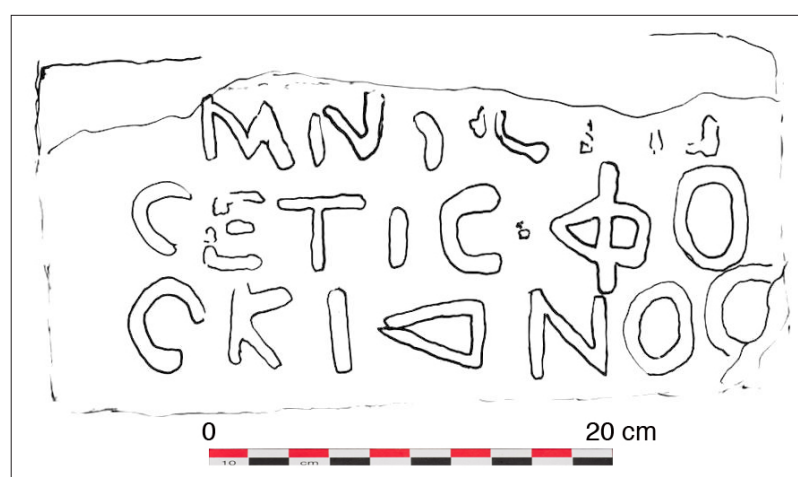


Fig. 42. Greek graffito 35003_i01 on wall 35003, in the east corner of T12 (reading F. Villeneuve, drawing J. Humbert, 2013).

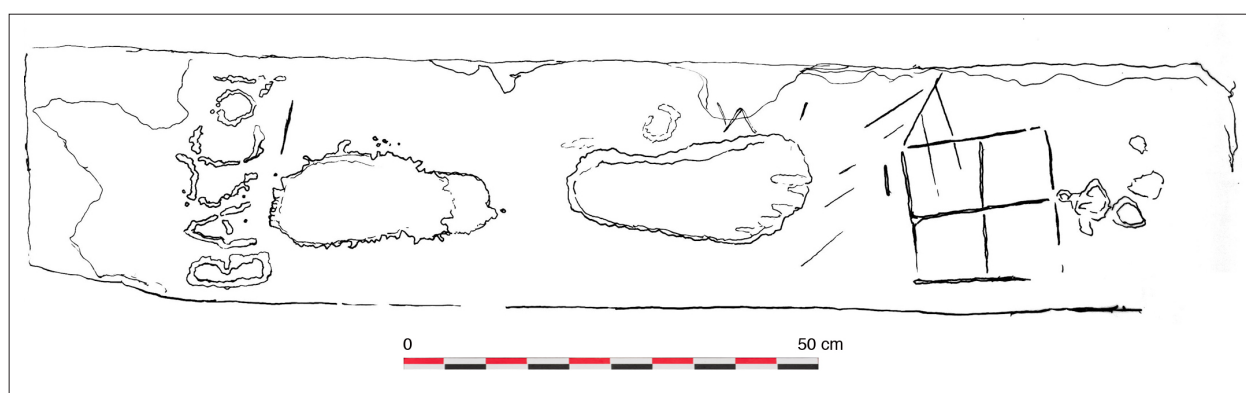


Fig. 43. Drawings as well as Thamudic and Nabataean (?) graffiti on the surface of the south-western stone of threshold 35007 (drawing J. Humbert, 2013).



Fig. 44. Stone threshold 35007 placed back in its original position. Drawings depicting footprints on the surface, looking south-east (14/02/2014).



Fig. 45. Drawing carved on a stone of wall 35004.

Area 60, Excavations at the Foot of IGN 132, East Side

Laïla Nehmé (CNRS, UMR 8167)

The excavations of the sanctuary known as IGN 132, which stands in the north-east part of the residential area, started in 2010 and were continued in 2011.¹ A two year interruption then followed since 2012 was exclusively a study season and 2013 a very short one before the second four-year excavation programme of the Madâ'in Sâlih project began in January 2014.

The top of IGN 132 is characterised by the presence of a Nabataean high place which was built at the end of the first century BC and was in use probably until the end of the first century AD (**figs 1 and 26**). The central element of this high place is a *tetrapylon*, the imprints of which are visible in the paved floor (see the restoration on **fig. 25**). Around the top of the outcrop, very close to its edge runs a one face enclosure wall. The whole installation is almost exactly orientated north-south and a rectangular ashlar, certainly *in situ*, was found fixed with mortar to the slabs right in the middle of the southern side of the paved platform. Because of this orientation, I suggested that the high place may have been devoted to the cult of the sun-god, possibly Dûsharâ, thus illustrating Strabo's statement (XVI.4.26) according which the Nabataeans 'worship the sun, building an altar on top of the house, and pouring libations on it daily and burning frankincense'. The discovery of a stone incense burner and of a bronze six-compartment casket in which incense or other products (cosmetics?) may have been kept (see **fig. 2**) is not a decisive argument in favour of this interpretation but it certainly shows, along with a small bronze eagle figurine, important ashy layers and large quantities of crushed Nabataean fine painted ware, that religious rituals, including the burning of incense and the offering of objects, were performed on the summit of the outcrop.² If we ignore Strabo, the cult of the sun-god by the Nabataeans is not directly evidenced. All we know is that Dûsharâ is once called *anikêtos* in a Greek inscription from Suwaydâ' in the Hawrân, an epithet considered by J. Healey as being characteristic of the sun god (*sol invictus*).³ Linant and Villeneuve suggested⁴ that since Strabo's account is the only literary evidence for astral cults among the Nabataeans (there are later ones in the site of Elusa in the Negev), it is possible that the reference to a solar cult by Strabo's informant, Athenodorus, may be a misinterpretation. Whatever the case, IGN 132 was a sanctuary probably devoted to a Nabataean god and the almost exact orientation to the south suggests that it may have had a solar character.

In the relatively flat area which surrounds IGN 132 (see **figs 1 and 26**), several installations can be found: the north side, excavated in 2010, is characterised by the presence of two terrace walls which have been interpreted as forming a *temenos*; the western side shows elements which were part of both the initial monumental entrance (pillars) to the sanctuary and of the later access (ramp) built after the partial collapse of the roof of chamber IGN 132a; the excavation of the southern side started in 2014 and yielded two walls

1. See respectively NEHMÉ 2014: 122–132 and *idem* 2011. See also NEHMÉ 2012 for a preliminary synthesis on this monument.

2. The casket, 60681_M01 was partly cleaned by M. Peillet during the 2014 season. The cleaning of the external wall revealed the presence of an incised decoration made of a series of rosettes separated one from the other by a double vertical line (**fig. 2**).

3. HEALEY 2011, referring to Greek inscription WADDINGTON 1968: no. 2312.

4. LINANT & VILLENEUVE 2014: 343.

belonging to at least two phases (L. Tholbecq, Area 63, see the next chapter in this volume); the south-western side, 10 m away from the edge of the outcrop, is a domestic quarter the excavation of which was resumed in 2014 (M. al-Hajiri, M. al-Musa and Kh. Alhaiti, Area 65); finally, the eastern side, immediately below the outcrop, seems to be primarily devoted to hydraulic installations, including several stone basins and a well.

It was decided, in 2014, to concentrate on the area east of the outcrop, i.e. an area *c.* 23 m long (north-south) and between 3.5 and 6 m east-west, which includes the basins and the well (**fig. 3**). Several east-west walls divide the space into sub-sectors the relative stratigraphy of which is difficult to understand not only because no section is available (the installations lean against the eastern flank of the outcrop) but also because the area is marked by a strong west-east slope. The excavations in each sub-sector will be presented below before a preliminary synthesis is tentatively given.

SUB-SECTOR A

This sub-sector (see **fig. 3**) is limited to the north and to the west by the bedrock, to the south by wall 60676, and it is not limited by any feature to the east. Previous excavation in this area⁵ include the removal of several layers (60652, 60656, 60658) which had initially been interpreted as possible backfill layers aiming at levelling the bedrock. However, layers 60740 and 60747 which are below them, are clearly destruction levels, with large blocks (**fig. 4**). Below 60747, there is a sandy layer made probably of aeolian deposits, mixed with large blocks, which is possibly the result of a phase of abandonment. It seems that the destruction layers 60740 and 60747 were partly cleared when it was decided to build wall 60676, which reused blocks from this destruction (one can see, on **fig. 4**, that there are no blocks along wall 60676, as would be expected if the area had indeed been cleaned and backfilled before the building of the wall. Below the destruction layer 60747 and abandonment (?) layer 60751, a large ashy spreading, 60752 was excavated. It rests on a sandy level, with which it is sometimes mixed, which shows that it results from multiple deposits.

Conclusions

This sub-sector witnessed several phases of occupation, which are presented here from the earliest to the latest:

- 1/ aeolian sandy deposit on the bedrock?;
- 2/ ashy deposits 60752;
- 3/ destruction and abandonment 60751;
- 4/ destruction 60740 and 60747;
- 5/ levelling and cleaning of the destruction in order to build wall 60676;
- 6/ building of wall 60676.
- 7/ destruction of wall 60676.

SUB-SECTOR B

Before excavation, this sub-sector was limited to the north by wall 60676 and to the south by wall 60666. In the west, it is in contact with the eastern flank of the outcrop and in the east it is bordered by wall 60714, crudely built in stones except at its southern end where a gap seems to have been filled with mudbricks (**fig. 5** and see **fig. 12**). These features enclose a surface *c.* 5 m north-south and between 2.5 and 5 m east-west, occupied by the more or less complete remains of six sandstone basins, numbered 1 to 6 and described at length in previous reports. The last *loci* excavated in this area in 2011 were 60668 and 60691, the latter

5. NEHMÉ 2011: 104 and fig. 23*bis*.

being a hard clayey layer in which the preserved basins are set or on which broken bottoms of basins have fallen. Unfortunately, these two *loci* have not been dated yet by the project's ceramicists.

In 2014, after a general cleaning of the surface (60710, last layer of destruction above the floors, with one large slab), it was decided to excavate one half of the area only in order to obtain a section at this point (**figs 6-7**). The stratigraphy is simple and includes two successive earth floors, 60711 and 60715, on the surface of each of which were found several sherds laid flat. Both floors contained exclusively 'Early Byzantine/Byzantine' sherds and 60715 yielded a Roman tetradrachm of Antioch of the first half of the 3rd century AD (60715_C01)⁶. Below 60711 and 60715 is a very thin unnumbered sandy deposit which probably corresponds to a very short period of abandonment (see **fig. 7**). Finally, below the sandy deposit is a series of *loci* the thickness of which was sometimes determined arbitrary. Individual *loci* numbers were given to them in order to distinguish possible differences in the pottery material. The layer below floor 60715 is 60719 which is red, clayey and characterised by the presence of very small white spots or patches. It corresponds probably to layer 60656, which was put to light in 2011 north of basin no. 3 and was cut by the foundation trench of this basin (see NEHMÉ 2011: fig. 34). According to C. Durand, the provisional date for the pottery of 60719, based on the fabrics, is 'Early Byzantine/Byzantine', but it contained also one probably residual Nabataean sherd. Below 60719 is 60722, which is very similar, but the pottery of which (the profiles) seems to belong more to the first century AD. Further deep, the earth has a different aspect, it makes compact clayey clods and it contains a few small stones and little pottery (60729, 60732, 60734, 60735 and 60738 were distinguished). The pottery found in 60719 and below contains a mix of Nabataean sherds from the 1st century AD and of 'Byzantine' sherds which correspond to the last occupation phase of the site.

The seven *loci* distinguished below floor 60715 were interpreted as a backfill the purpose of which was to create a platform immediately below the outcrop. As can be seen on the section (see **fig. 6**), the bedrock slopes steeply from west to east. Moreover, if, as I assume, the first three basins, no. 1, 2, and 3, were to be filled directly by the rain water collected on the summit of IGN 132, they had to be laid vertically down the edge of the latter, hence the need to create an artificial platform at this point. The hypothesis of a direct filling of the basins through the rainfall collected on the summit of IGN 132 is based on the fact that at this point of the edge of the outcrop, the rock was recut at a time when the enclosure wall around the summit was not in use anymore (**fig. 8**). Also, the north-east corner of the outcrop, under which the basins are installed, is the lowest spot of IGN 132 the summit of which slopes down from south to north.

North-south wall 60714, which marks the limit of the basins' area to the east, rests on top of 60719 and was most probably built during the same phase of construction. It is also the case of wall 60676, both walls being built carelessly, with sandstone blocks of various shapes and dimensions arranged in relative disorder. By contrast, wall 60666 is built more carefully: it is a proper two face wall built with some reused ashlar (**fig. 9**). The bottom course of the wall follows the profile of the bedrock and wedging stones are used to fill in the gaps. Being built above the bedrock, it does not have a foundation trench and could therefore not be dated. However, since *locus* 60719 goes *below* wall 60714 and *against* wall 60666, the latter is clearly earlier than wall 60714. On the other hand, it is clear that wall 60666 is *later* than wall 60725 (on which see below), which runs along the east face of 60714. Indeed, as can be seen on **fig. 10**, the lower courses of wall 60666 come *against* the western flank of wall 60725 while its upper three courses (**fig. 11**) lie *above* the highest preserved mudbrick course of this wall. This means that when wall 60666 was built, wall 60725 was not higher than it is now. On **fig. 12**, one can see that one block from 60666 fell on top of the preserved upper course of 60725. It is therefore possible that wall 60666 does not belong to the first phase of occupation recognised in this area (with walls 60725 and 60750), whether it is contemporary or not with the sanctuary above, but to a subsequent yet undated phase which, any case, is earlier than the phase during which the basins were installed on the platform.

6. All the coins from the 2014 season were read by T. Bauzou.

Half of a column drum, the diameter of which – 40 cm – is the same as the one discovered in the destruction layer 60709, was reused in wall 60714, which confirms that the latter postdate at least one phase of the destruction of the *tetrapylon* above.⁷ This is also confirmed by the fact that block 60715_S01 was found reused (it did not fall on 60715). It is decorated (**fig. 13**, and see **fig. 5**) with one almost complete crowstep and the beginning of another (the rest is broken) and it was probably part of a frieze crowning the Nabataean sanctuary on the summit of the platform. The *terminus post quem* for these installations, AD 250, is given by coin 60715_C01.

On the other – east – side of wall 60714, several *loci*, all of which are *above* and therefore later than wall 60725, are the equivalent of *loci* 60711 and 60715. Thus, 60717⁸ (dated ‘Early Byzantine/Byzantine’ by C. Durand) = 60715. *Loci* 60721, 60733, 60736⁹, 60745 and 60746 are below it and are part of the same phase of occupation and circulation east of 60714. The last two are immediately above the preserved level of wall 60725.

Wall 60725 (**fig. 14**), is a *c.* 80 cm wide wall, made of three rows of mudbricks most of which are stretchers, except in the eastern course of the middle part of the wall and possibly in the western course of its southern part, where they are used as headers. The mudbricks are not regular but they have average dimensions of 25 x 40 cm. *Locus* 60737,¹⁰ below 60736, is a destruction layer of wall 60725 (see also 60755, unexcavated in 2014).

Finally, only a small section of wall 60750, which forms with 60725 an angle slightly more than 90° (**fig. 15**), was put to light. It is a mainly stone-built wall which, however, seems to contain also mudbricks. It is clear that wall 60714 was not built *above* wall 60725. One can see, indeed, that there is a joint between the mudbricks of 60725 and the stones of wall 60714. On the other hand, it seems that the blocks of wall 60676 were laid partly *above* 60750 (**fig. 16**).

Conclusions

This sub-sector witnessed several phases of occupation, which are presented here from the earliest to the latest:

- 1/ building of wall 60725 and probably 60750. This phase is not precisely dated yet but its *terminus ante quem* is AD 250 (coin 60715_C01). It may or not be contemporary with the sanctuary on the top, which is dated to the late 1st century BC. The function of the building to which these two walls belonged is not known;
- 2/ building of wall 60666;
- 3/ backfilling of the space between the eastern flank of the outcrop and wall 60725;
- 4/ building of walls 60714 and 60676 on top of the backfill, probably with blocks taken from neighbouring destruction layers;¹¹
- 5/ installation of the stone basins, which caused the dismantling of the western end of wall 60676;

7. Note that the negative of the columns in the pavement on top of IGN 132 has a diameter of 0.50 m. These column drums would therefore fit perfectly if one considers that a 5 cm space was left around the drum to fix it in the hole.

8. A coin attributed by T. Bauzou to the so-called North-Arabian Owl type (3rd to 1st century BC?) was found in 60717, but it is probably residual.

9. Numbered 60731 in the area east of wall 60666.

10. One coin, 60737_C01, was attributed either to the North-Arabian Owl type or to another pre-Nabataean local coin.

11. It is therefore probable that sub-sector B was cleaned from destruction debris *before* the backfill layers were put in, otherwise it would be difficult to explain why no blocks were found in the layers below the basins. The other possibility would be that the destruction of the building on top of IGN 132 postdated the installation of the basins, which is not possible because there were no destruction layers equivalent to those excavated in sub-sector C and there is no reason to suppose that the destruction fell north wall 60676 and south of wall 60666 and not between these two walls (see report 2010, figs 54 and 57, where one can see that the area is devoid of large blocks such as those of fig. 67).

6/ use of the stone basins, with floors 60711 and 60715 west of 60714 and 60721, among others, east of 60714;

7/ destruction of stone basins.

These seven steps represent roughly three phases of occupation: one which may be Nabataean (60725 and 60750), one which has a *terminus post quem* of AD 250 (walls 60714 and 60676) and one in between (wall 60666).

SUB-SECTOR C (FIG. 17)

This sub-sector, between walls 60666 north and wall 60649 south, is probably the most complicated one, because many features were uncovered on a relatively limited surface (6.20 m maximum north-south and 4 m east-west), the relative stratigraphy of which is sometimes difficult to determine.

The excavation in 2014 started with the removal of one ‘cleaning’ layer (60709) which is a layer of destruction containing sandstone blocks, a 0.40 cm diameter and 0.30 cm thick column drum (see note 7) and a large white sandstone ashlar.

The *loci* excavated in this area in 2011 were almost all layers of destruction which contained large quantities of stones of various sizes as well as ashlar. Their removal put to light an overflow associated with the well (see fig. 17), a few stones which appeared to be aligned (they are in fact part of 60725) and a pit, 60727, the filling of which, *locus* 60682, contained a lot of animal bones but too little pottery to be dated. This pit extended from wall 60666 to the south and was probably limited east by wall 60725¹² and south by wall 60724, made of three courses of one row of stones which do not seem to have been assembled with a strong mortar. Wall 60724 is parallel to 60666 (see fig. 3) but it is earlier than wall 60725 (see fig. 20) and therefore they do not belong to the same phase. However, the space between them subsequently served as pits,¹³ 60727 (filling 60682, 60712, 60713, and 60744) and 60759 (filling 60753, the bottom of which is marked by an irregular clayey layer, *locus* 60757, unexcavated in 2014). According to C. Durand, the pottery from 60753 (more than 500 sherds) is very homogenous and belongs to the ‘Byzantine’ and to the last phase of occupation of the site.¹⁴ It gives a *terminus ante quem* to the pit below it, the upper filling of which, 60744 contained also a lot of pottery which was dated by C. Durand, on the basis of the fabrics and the profiles, to the ‘Early Byzantine/Byzantine’ with a few earlier residual elements.

Other important features of this sub-sector are the installations which surround the overflow on the northern side of the well. These include the basin placed at its outlet, the blocks which formed some sort of enclosure around it (*locus* 60743)¹⁵, and a channel fragment which does not seem to be *in situ* (it slants) but is probably not far from its original position. I suggested initially that the overflow was part of the initial building programme of the well.¹⁶ The reason is that the stone which forms the overflow rests on a block which protrudes from the masonry of the well. This, however, is not a decisive argument since this stone may have been put in later. It therefore seems better to associate the overflow and the associated structures (60743) and layers (60741) to a subsequent phase of reuse of the well. It is certain, in any case, that they are later than walls 60724 and 60725, against which they lean. It also seems that the whole installation was maintained by a backfill (*locus* 60720) made of sandy earth and ashlar some of which seem to come from the destruction of the building on top of IGN 132 (figs 18–19).

12. On fig. 11, one can see that part of the filling of pit 60727 comes over the upper layer of mudbricks of wall 60725.

13. The upper level of the filling of pit 60727 is at the same altitude as the top of the stones of wall 60724.

14. It contained also large quantities of medium sized blocks, three fragments of basins, two of grinding stones and two pestles.

15. Above the stones of 60743, there were two fragments of column drums laid flat, each of which belonging to a column of 70 cm in diameter.

16. NEHMÉ 2011: 110 and fig. 48–49.

The most important feature of sub-sector C may be wall 60725, which appears to be a 10 m long wall (see **fig. 14**). Its northern part (in sub-sector B) shows three rows of mudbricks and its southern side (in sub-sector C) only two, the eastern face of the wall being made of stones which have collapsed (*locus* 60755, unexcavated in 2014). In places, the substructure of the wall is made of three courses of stone (**fig. 20**, see also **fig. 10**).¹⁷ The relative chronology between walls 60666 and 60725 was examined above. What can be added is that three stones, laid flat on top of wall 60725, seem to be part of the circulation floor associated with the basins in sub-sector B (see **fig. 11**).

Conclusions

In the present state of the excavations, the chronology of this sub-sector, from the earliest to the latest known levels, seems to be as follows:

- 1/ walls 60724 and 60725;
- 2/ wall 60666; 60728?
- 3/ installation of the overflow and of the basin at its outlet;
- 5/ pits 60727 and 60759;
- 6/ abandonment? (60716, 60718) and destruction (60709, 60710, 60723 = 60730) levels.

SUB-SECTOR D

This is the southernmost sub-sector of the area, the most important feature of which is well no. 132, dug at the bottom of the crack which divides the outcrop IGN 132 in two parts leaning against each other (**fig. 21**). For this reason, it was assumed that the water supply of the well came both from above (as in a cistern) and below, i.e. from the water table. The well was built at a relatively high altitude (785 m asl), higher than any other well in Hegra. This means that water was accessible several meters deeper than in the other wells. Well no. 132 is flanked north and south by two walls, 60649 and 60661, which were built during the same building programme. They were either retaining walls or were part of the lifting device.

Work in this area in 2014 includes surface cleaning of the areas south and east of the well. South of it, a thick layer of melted mudbrick, *locus* 60748, may correspond to the destruction of walls 60661 and 60749 (**fig. 22**). The latter, which appeared after surface scraping, is less than 2 m long and is made of large blocks, similar to those of wall 60661 but forming only one row of badly assembled stones, visible for the moment on two courses only (**fig. 23**). Its date is unknown.

East of the well, the cleaning of the area in 2014 revealed the retaining structures of the well. Indeed, one should remember that the area around it had to be filled in after the masonry surrounding its upper part (15 courses) was built, especially on the eastern side because of the natural sloping of the terrain. Ultimately, both the masonry of the well and the backfill had to resist to the pressure produced by the water stored in the well. These retaining structures consist in a partly cleared wall, 60760, the eastern face of which is two meters east from the coping of the well (see **fig. 3**). The space between the two was backfilled with earth and small stones. In the south-east corner of the area this backfill spread beyond wall 60760 (see **fig. 22**).

Thus, the installation of the well necessitated major building activities in the area, among which the building of three retaining walls, 60649 north, 60661 south and 60760 east. The space between these walls and the masonry of the well was backfilled with earth and stones. This took place most probably during one single building programme.

17. The mudbricks above the substructure visible on **fig. 20** have been over-excavated and yielded one coin (60726_C01), dated to the reign of Aretas IV with Shaqīlat, i.e. from the twenty-seventh year of his reign onwards (AD 18 onwards).

CONCLUSION

The 2014 season focused exclusively on the area located at the bottom of the eastern flank of IGN 132 because it seemed to have the best archaeological potential. Several structures had been put to light in 2010 and 2011 but most of the excavated *loci* were destruction layers and the chronology of the structures could not be determined. This area is difficult to excavate for several reasons: it is very long (23 m) and relatively narrow; it is bordered on the west by the outcrop, which makes it impossible to get a north-south section, especially since the terrain slopes towards the east, where a proper section will be obtained only when the excavations have gone deeper.

Despite these difficulties and on the basis of the observations made above, one can draw a general outline of the occupation in the area. Since many features are not in contact with each other, which means that their stratigraphic relationship is not direct, and since the pottery of a selection of *loci* only was studied, the following reconstruction is tentative.

At the end of the first century BC, a sanctuary/high place was installed on top of IGN 132 (**fig. 26**). The access to it was from the west, i.e. on the side of the city centre, as would be expected. Terraces and walls in the north formed a *temenos* which enclosed the sacred area. It is almost certain, although this is, for the moment, not confirmed by the pottery, that the well was dug at the bottom of the crack on the south-eastern site during the same building programme (Phase 1). It is possible that walls 60724, 60725 and 60750 also belong to the same phase but their function is not known.¹⁸ All that is certain is that their *terminus ante quem* is AD 250. A second phase may be represented by wall 60666, which may have been built before the area which was going to receive the basins (sub-sector B) was backfilled. A third phase is finally represented by the period when the basins were in use, the *terminus post quem* of which is AD 250. Pits 60727 and 60759 may tentatively be associated to this phase during which domestic or other kind of activities requiring water were performed at the foot of IGN 132. One would expect other features, such as the overflow and its associated structures, to be associated with this late occupation phase. As for the ashy spread 60752, there is no reason to suggest that it is late (despite the fact that it was almost visible before excavation) and it is earlier than one phase of destruction of the building which collapsed immediately to the west of it.

The areas excavated on and around IGN 132 do not show any favoured orientations and the lines which are drawn on the plan are not particularly perpendicular to each other (see **fig. 26**). The urban layout in this area seems rather to have been determined either by local constraints (top of IGN 132) or simply by the orientation of the buildings, which seems to have been different one building from the other.

RESTORATION AND CONSOLIDATION WORK

During the 2014 season, some restoration and consolidation work was undertaken on IGN 132 by I. as-Sabhân (see his report in this volume). This includes the building of stairs at the supposed location of the original access to the summit of the outcrop (**fig. 24**), the restoration of the pavement on the platform on which stood the *tetrapylon* using mudbricks instead of stone slabs in order to allow for an immediate identification of the restored parts (**fig. 25**), the consolidation of the two pillar bases west of the outcrop, and the restoration of a small section of the northern enclosure wall of the high place. Finally, the stone basins, which suffered from their exposure to sun, wind and water, were consolidated with mud mortar.

18. It is possible that they aimed at enclosing completely IGN 132, in which case they could be compared with the northern wall of Area 63 south of the outcrop.

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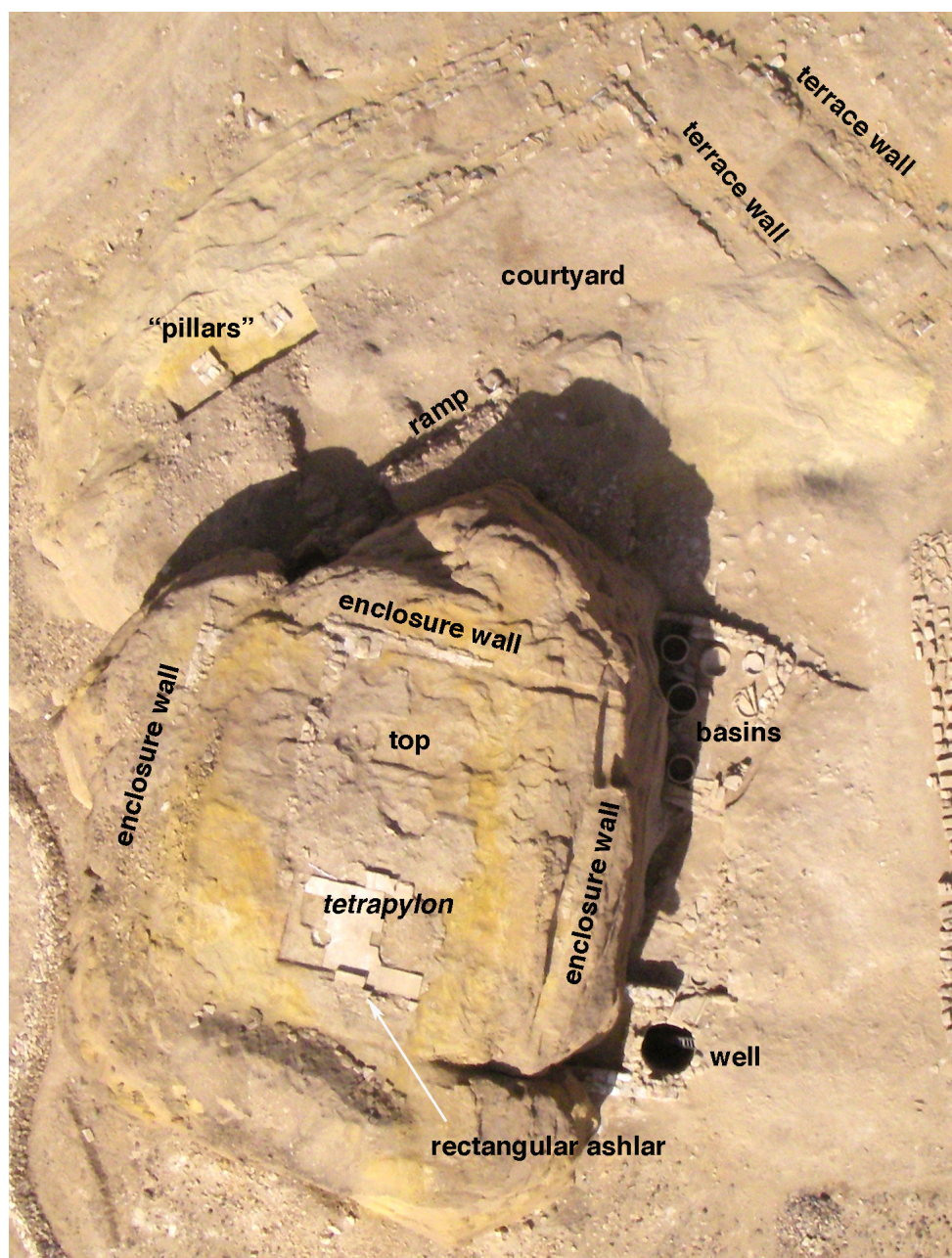


Fig. 1. Kite view of IGN 132 after the 2011 excavation season (W. Abu-Azizeh).



Fig. 2. Rosette incised on the wall of the bronze casket.

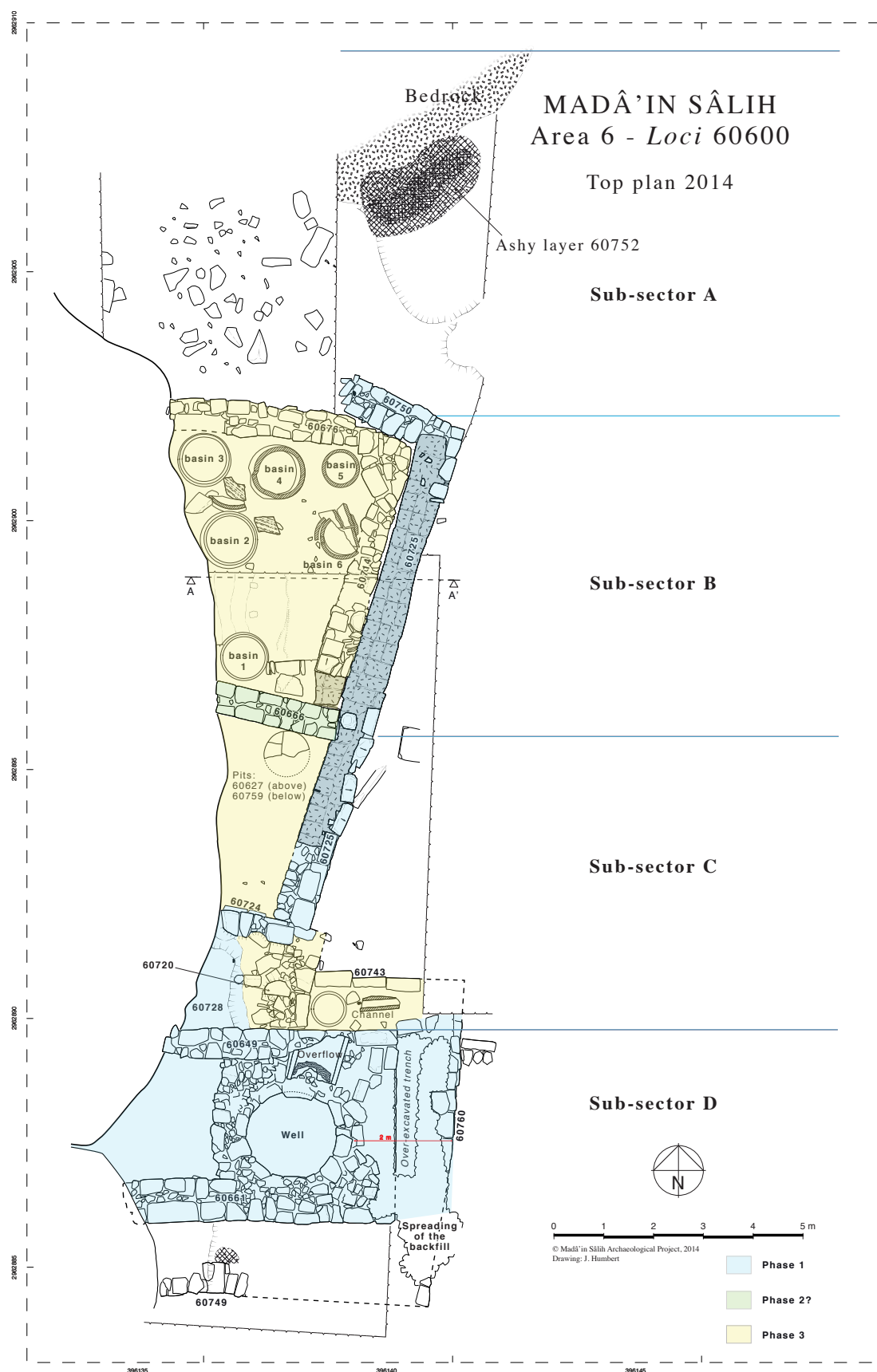


Fig. 3. General plan of the area east of IGN 132 at the end of the 2014 season.

Fig. 4. General view of sub-sector A, north of wall 60676, with layer of destruction 60740 and ashy spreading 60752.

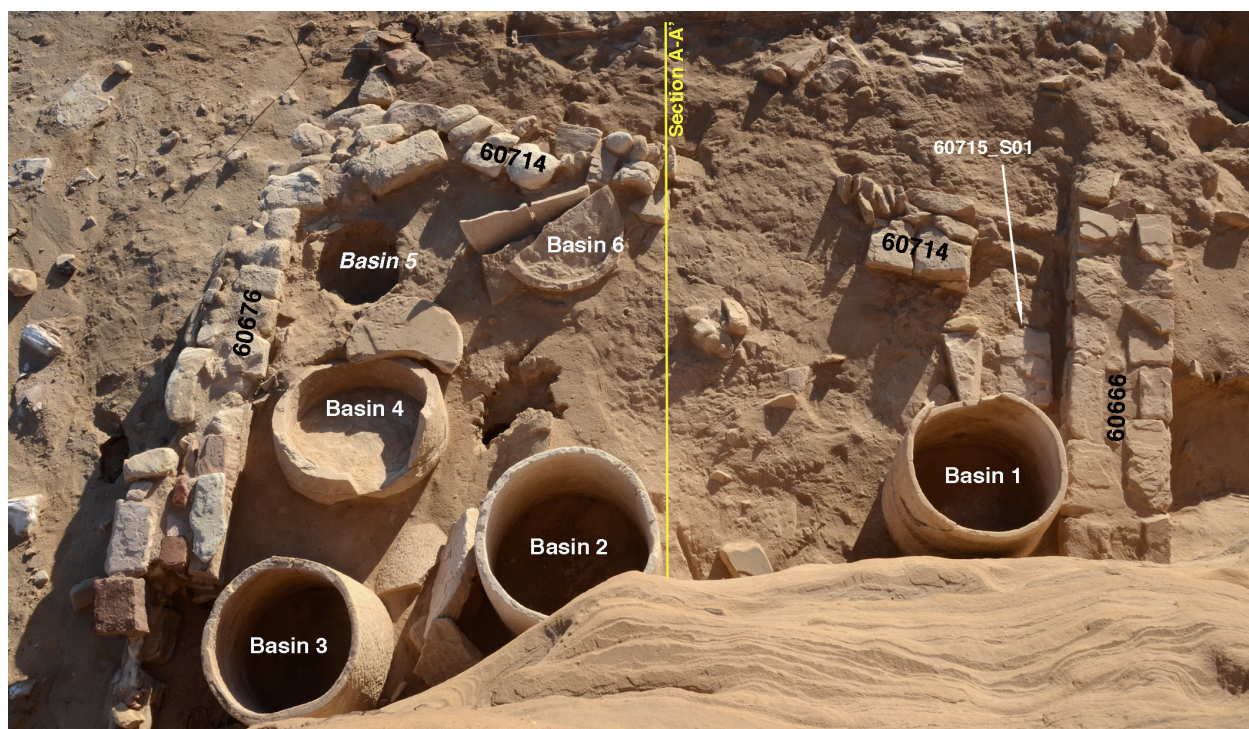


Fig. 5. Sub-sector B after general cleaning of the surface.

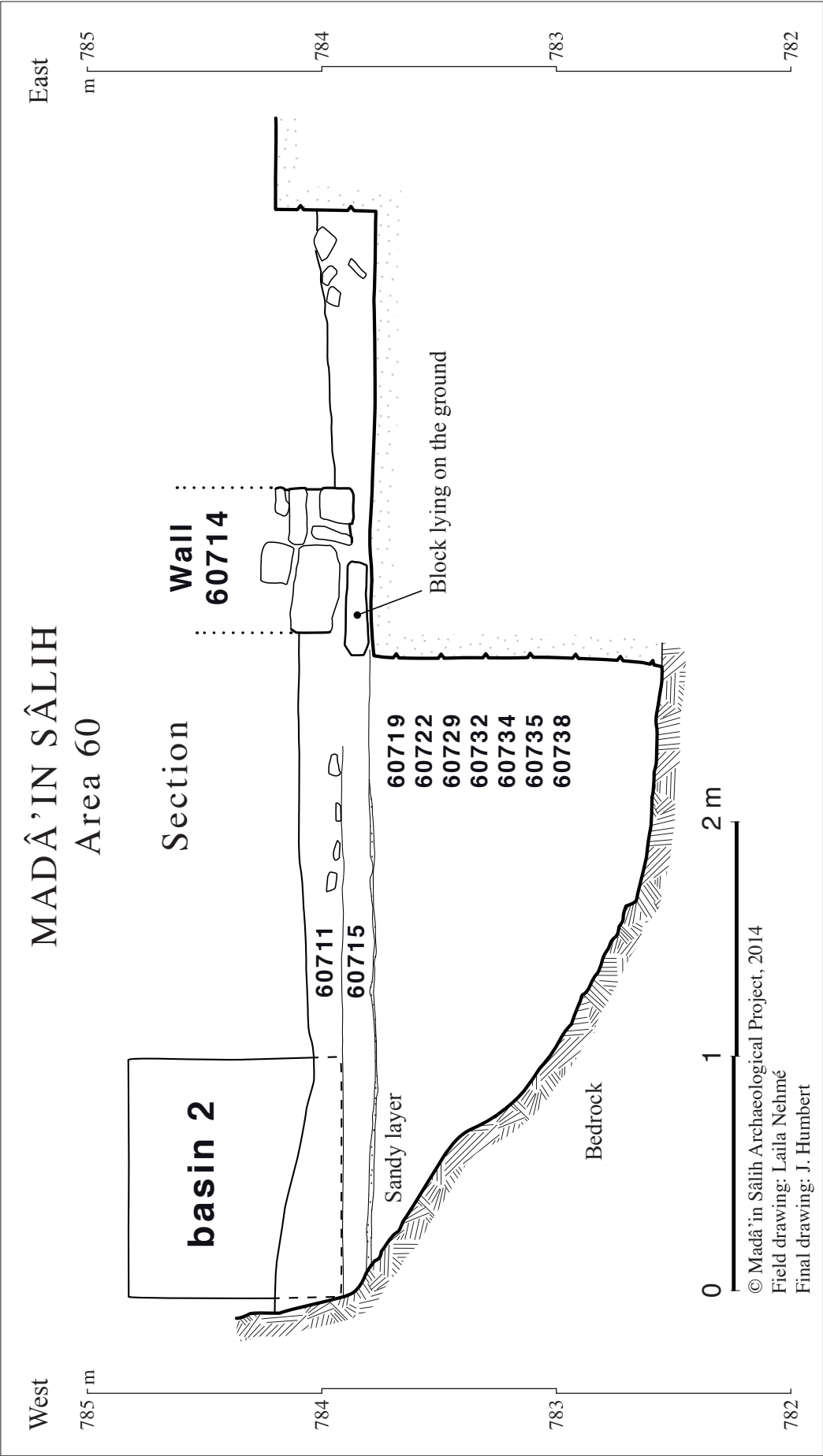


Fig. 6. Section A-A' between the bedrock and wall 60714 in sub-sector B (see fig. 3).

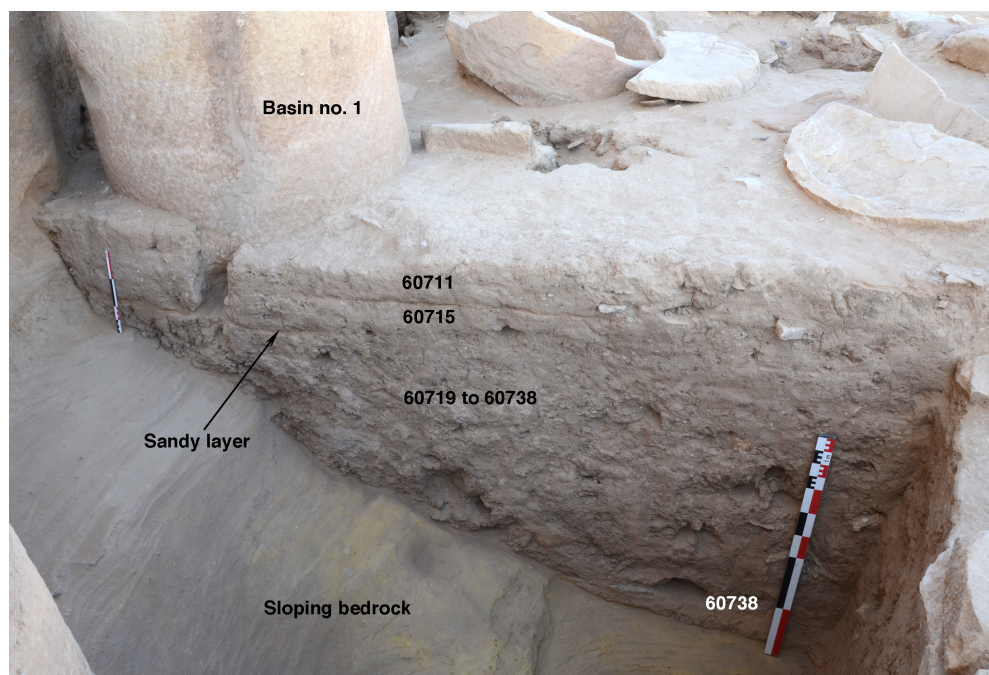


Fig. 7. View of section A-A' between the bedrock and wall 60714 (see fig. 6). Note the two floor levels 60711 and 60715.



Fig. 8. The north-eastern edge of outcrop IGN 132, above basins no. 1–3, was recut, probably to facilitate the filling of the basins below. In this phase, the wall enclosing the top of IGN 132 was not standing anymore.

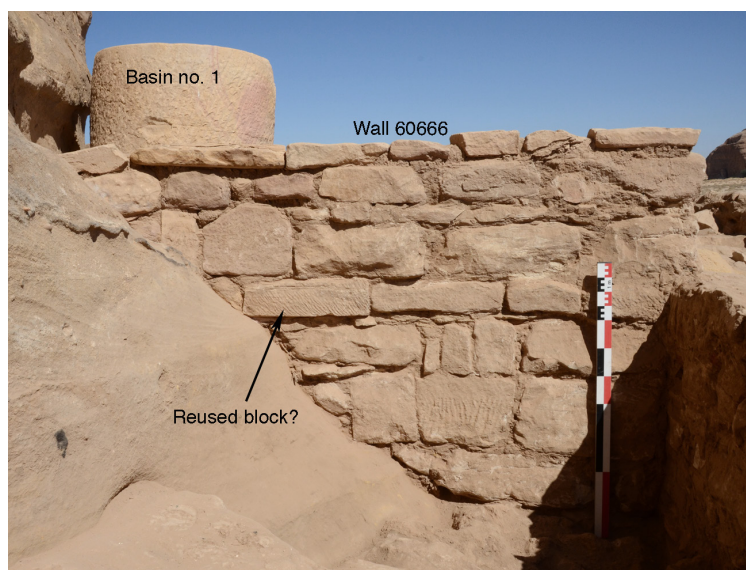


Fig. 9. Southern face of wall 60666 with probably reused blocks. Note the small wedging stones used to adapt the wall to the profile of the bedrock.

Fig. 10. Walls 60666 and 60725. The lower four courses of the former come against wall 60725 and the upper three are above it (see also fig. 11); 60725 is therefore earlier than 60666.

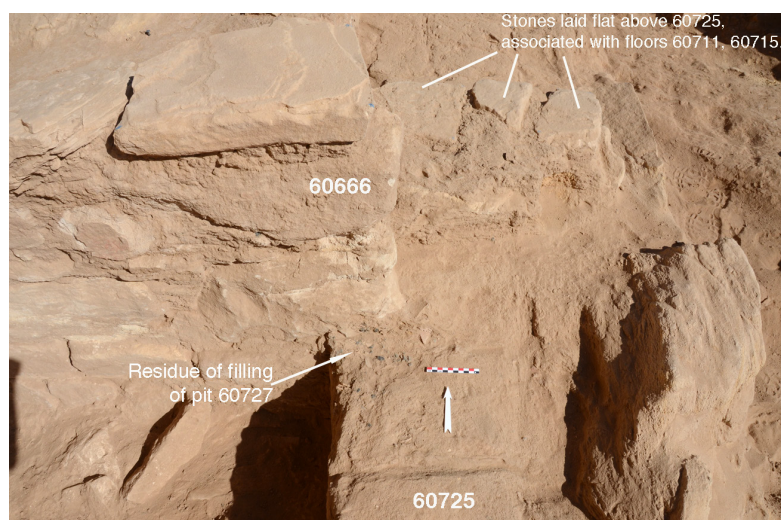
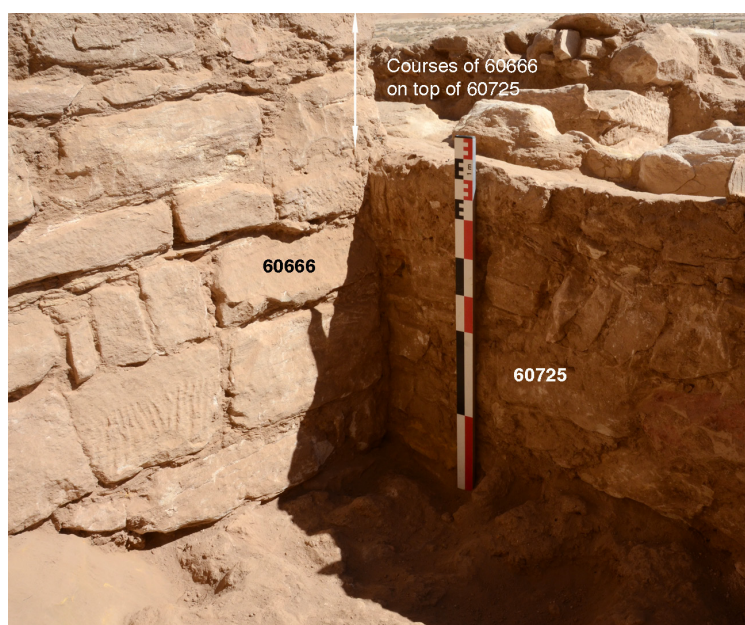


Fig. 11. Upper three courses of wall 60666 above the preserved level of 60725.

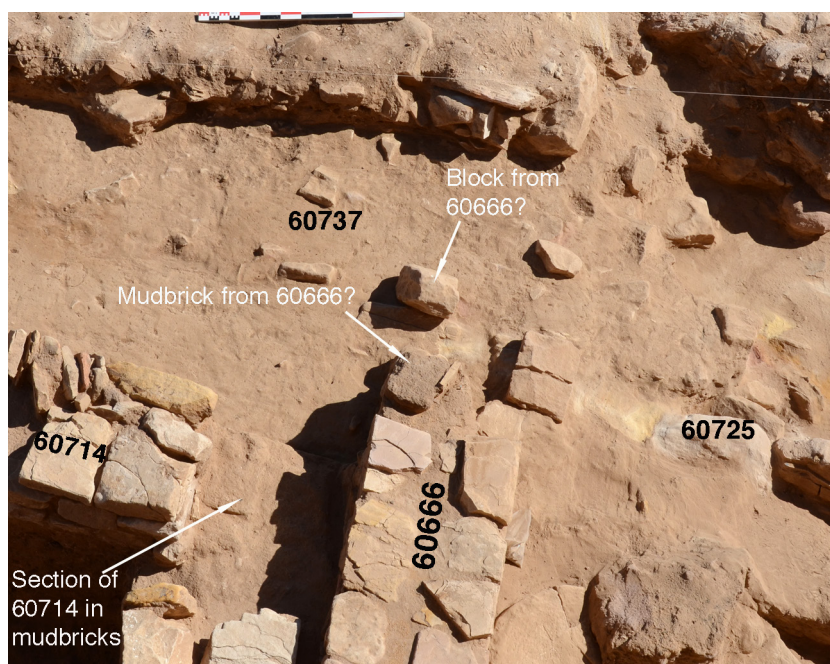


Fig. 12. Stone and mudbrick from 60666 which fell on top of the preserved level of wall 60725.

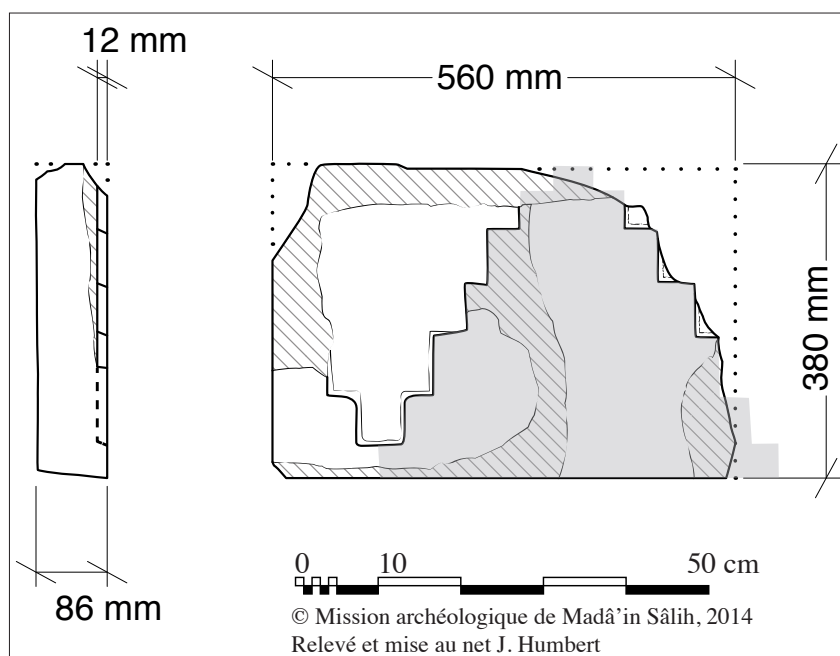


Fig. 13. White sandstone block 60715_S01 decorated with crowsteps which belonged probably to the frieze of the building standing on top of IGN 132.



Fig. 14. General view of wall 60725.

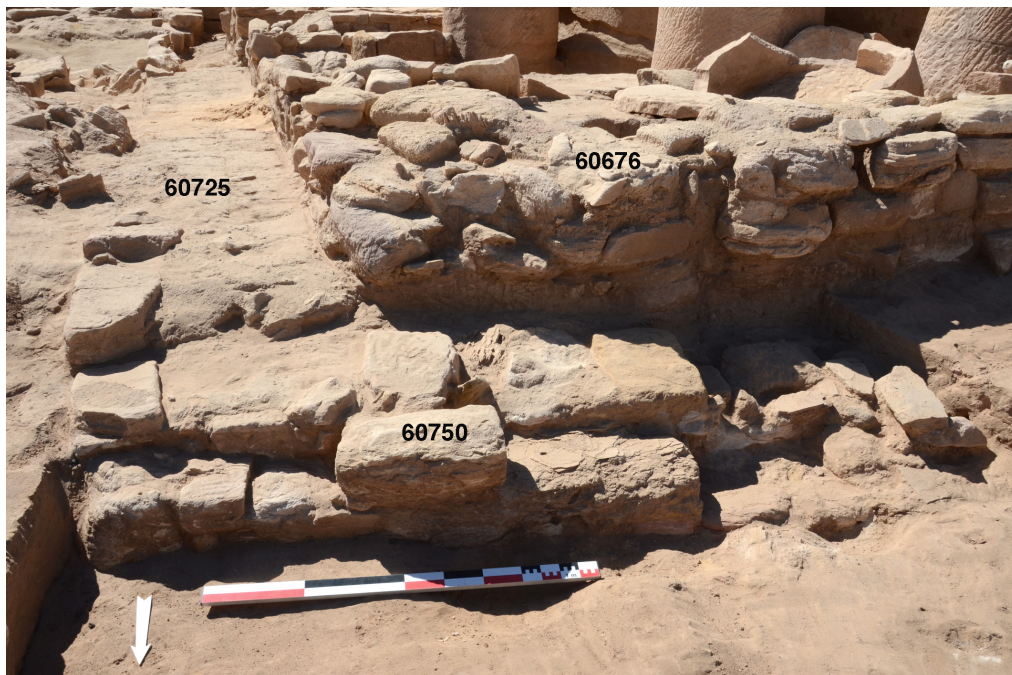


Fig. 15. Angle between 60725 and 60750.

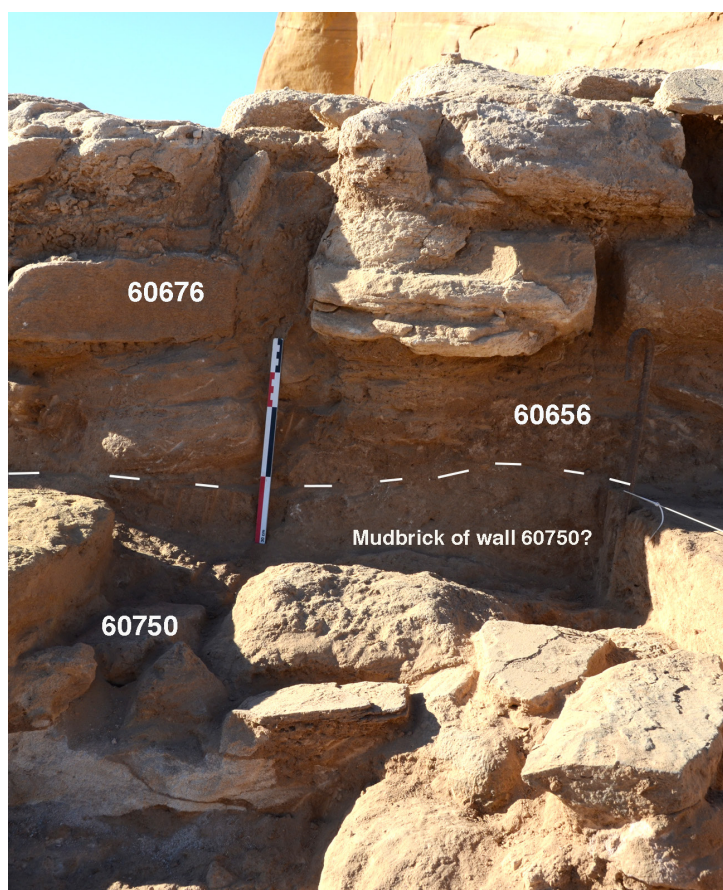


Fig. 16. North face of walls 60666 and 60750 showing that 60666 was probably built above a mudbrick belonging to wall 60750.

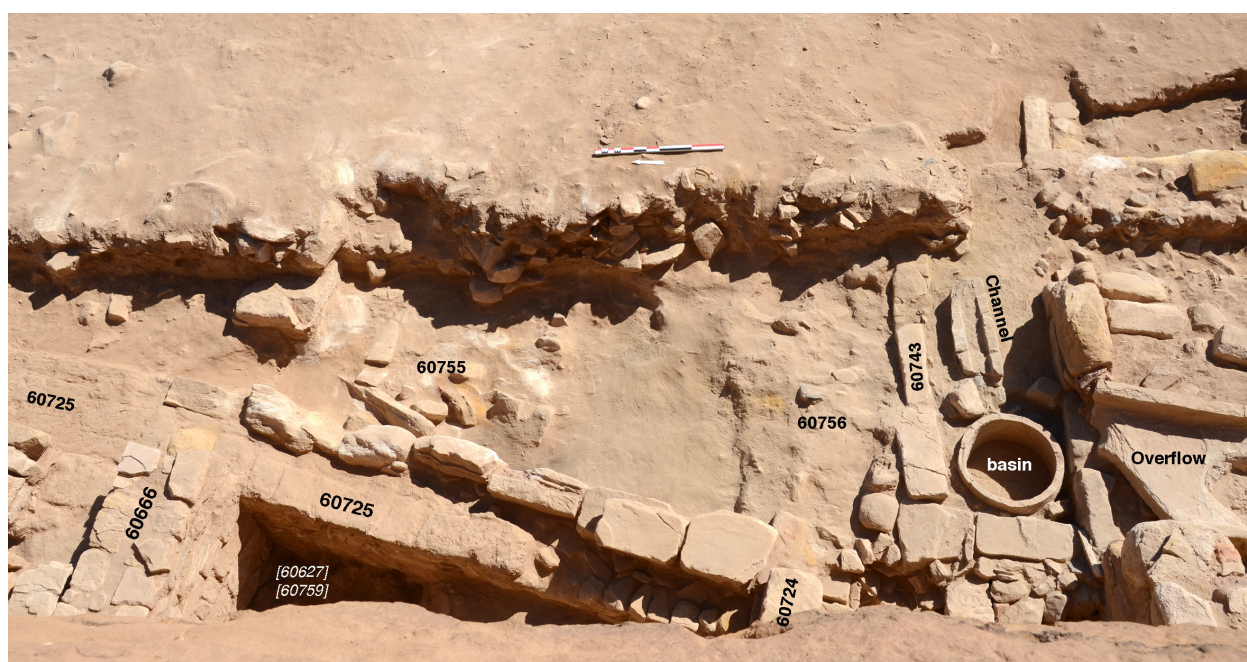


Fig. 17. General view of sub-sector C at the end of the 2014 excavation season.

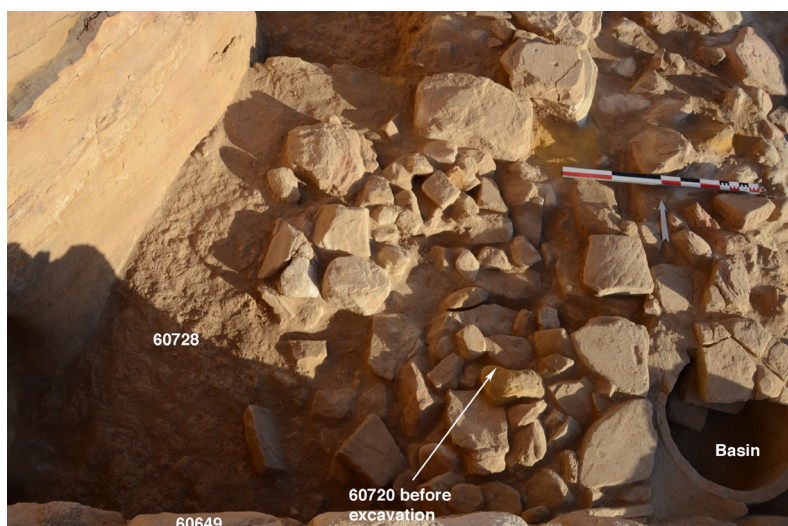


Fig. 18. Blocking 60720 surrounding the installations at the outlet of the overflow.

Fig. 19. Blocking 60720 during excavation, with large ashlar mixed with small stones. Note that 60628 was cut by 60720.

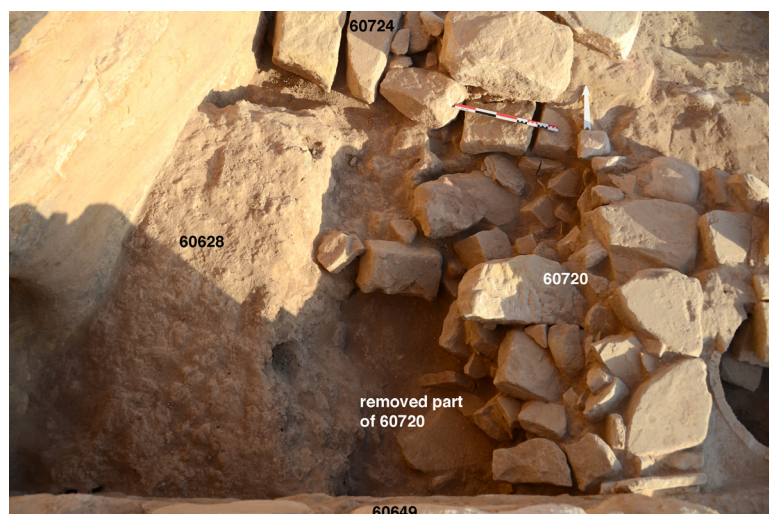


Fig. 20. Substructure of wall 60725, the eastern face of which is made of one row of stones. The empty space above the substructure was built in mudbricks which were removed in 2014.



Fig. 21. General view of sub-sector D, around well no. 132, at the end of the 2014 season.



Fig. 22. Area south of wall 60649 after surface scraping.



Fig. 23. Wall 60749 from the south.



Fig. 24. Building of stairs giving access to the top of IGN 132.



Fig. 25. Platform with *tetrapylon* after restoration at the end of the 2014 season.

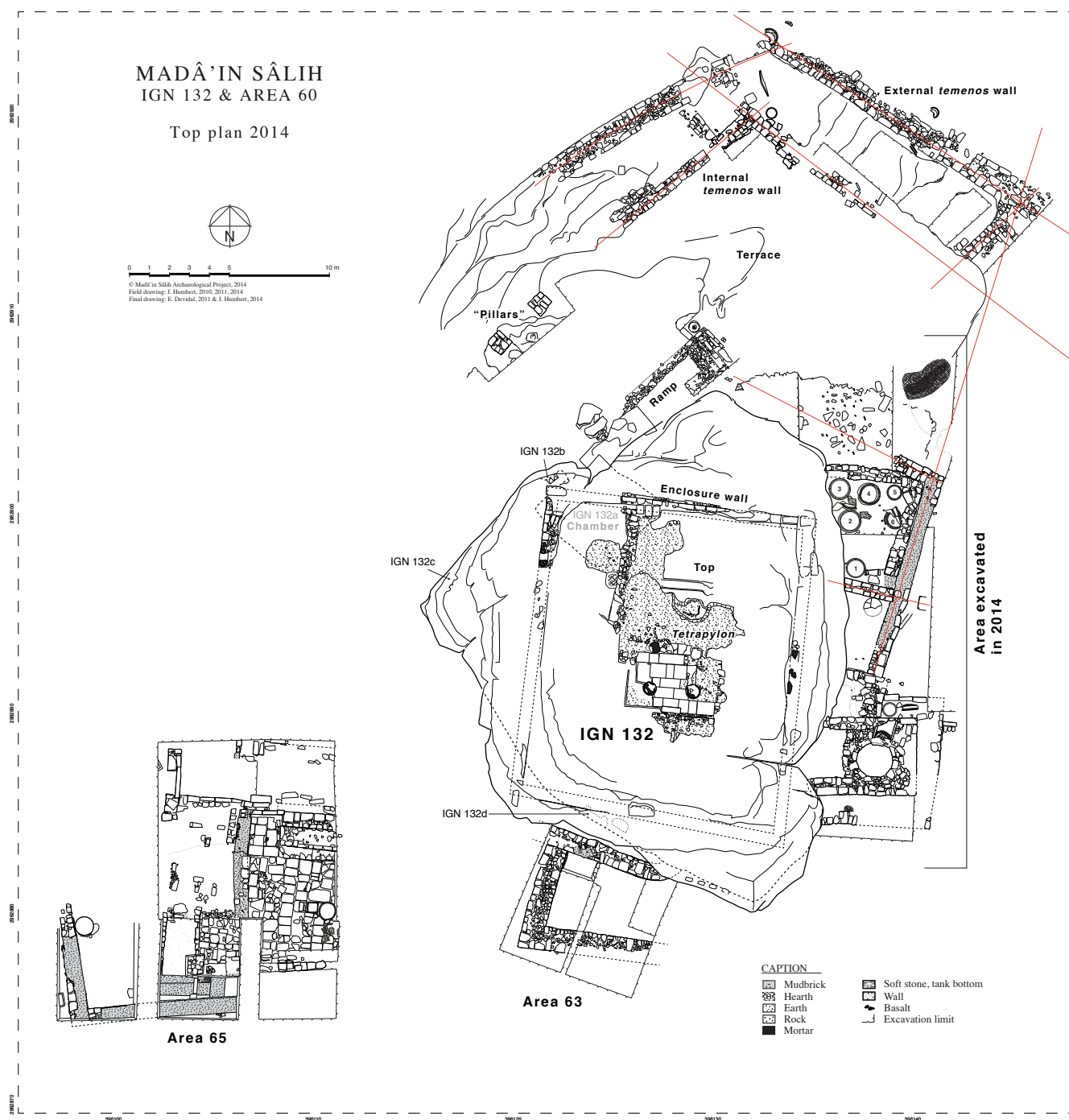


Fig. 26. General plan of IGN 132 in its context.

Preliminary Report on Area 63000, South of IGN 132

Laurent THOLBECQ (Université libre de Bruxelles)

A new square (*loci* 63000) was opened in 2014 in the residential area, immediately south of the outcrop known as IGN 132, on which a Nabataean temple was built in the late first century BC and which was excavated in 2010 and 2011 (see references in L. Nehmé's report in this volume). This particular area seemed interesting to excavate because of the presence, immediately below the edge of the outcrop, of a massive curving wall which leant against the rock face. Also, an empty but monumental niche, IGN 132d, was carved on the southern flank of the outcrop (**fig. 1**).

The excavation had three objectives: 1/ determine whether the religious space associated with IGN 132 was restricted to the top of the outcrop, or whether it extended in the lower adjacent areas; 2/ determine the nature and chronology of the excavated area; 3/ try to establish a connection with the two neighbouring excavation areas (60000 east and 65000 west) and hence examine the possibility of topographical and chronological relations between them.

A 7 by 7 m square was opened and excavated during three weeks and a preliminary phasing of the area was obtained. First (Phase 1), a solid ashlar wall (63001) was built along the southern face of IGN 132 (**figs 2–3**). This wall follows the curve drawn by the southern flank of the outcrop at this point and it is built directly below overhangs of the rock. It is probable that the wall originally reached these overhangs and gave to this side of the outcrop a monumental aspect. Its foundations are still *in situ* (63039) and it is preserved up to twelve courses (2.28 m high). Some of its characteristics can be explained only if we admit that it was destroyed – at an undetermined period – and rebuilt during Phase 2. These characteristics are: 1/ the fact that the majority of the ashlar blocks show traces of chipping which attest to a secondary use; 2/ the wall once supported a mudbrick elevation the material of which was found in a tumble (63010, visible in the section **fig. 4**) on the northern side of the wall; 3/ the north and south faces of the wall are not properly bonded to each other. In the present state of research, we suggest to associate this secondary phase to various structures identified in the southern half of the square. These are the foundation course of two walls (63008 and 63016) which, along with the ashlar wall 63001, define a 3.5 by 5.5 m room, probably accessible from the south through a door which was later blocked. One is tempted to link this phase to a row of beam mortices which have always been visible on the southern flank of IGN 132 (see **fig. 1**). Finally, during Phase 3, the wall, which is one of the very few ashlar structures visible in the residential area before excavation, seems to have been partly dismantled and the area was used as a quarry.

As far as the chronology is concerned, it has been possible to show the existence of a hiatus between the Nabataean and Late Roman periods. Thus, the foundation of wall 63001 seems to date back to the 1st century AD whereas its reconstruction and the other structures seem to be Late Roman and Byzantine according to the preliminary reading of the pottery by C. Durand. This conclusion is important since it confirms the chronological framework obtained in other areas of the ancient city, such as Area 9.

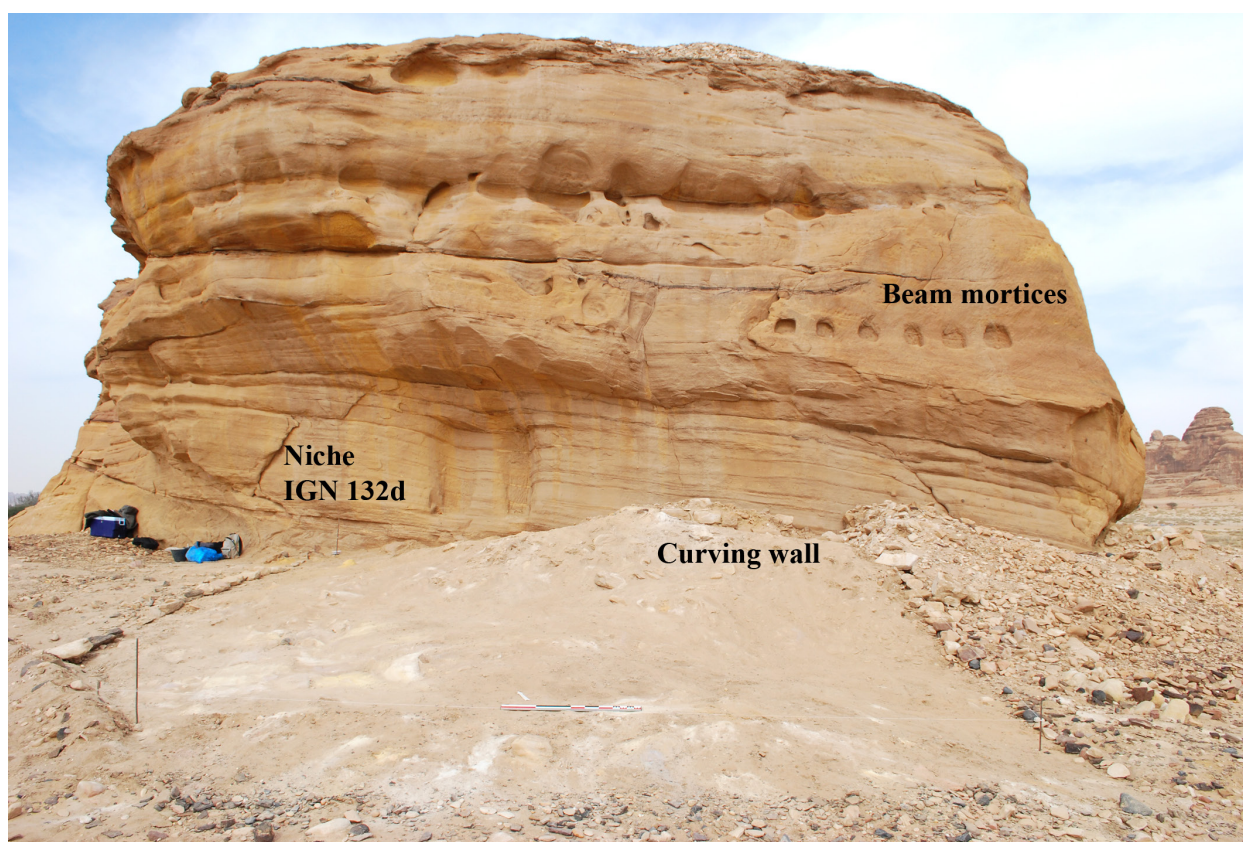


Fig. 1. General view of the southern flank of IGN 132 before excavation.

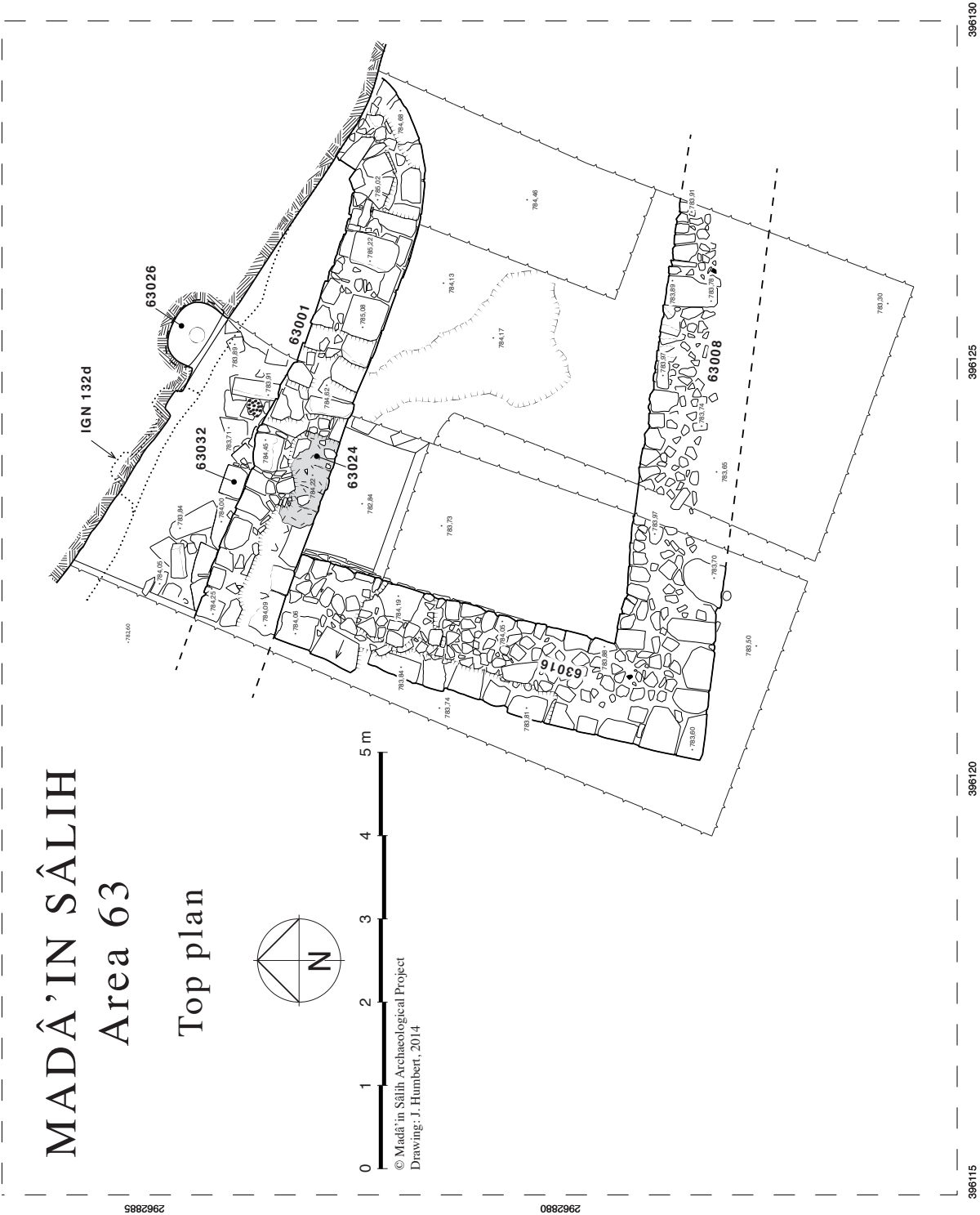


Fig. 2. Top plan of Area 63 at the end of the 2014 excavation season.



Fig. 3. General view of Area 63 at the end of the 2014 excavation season.

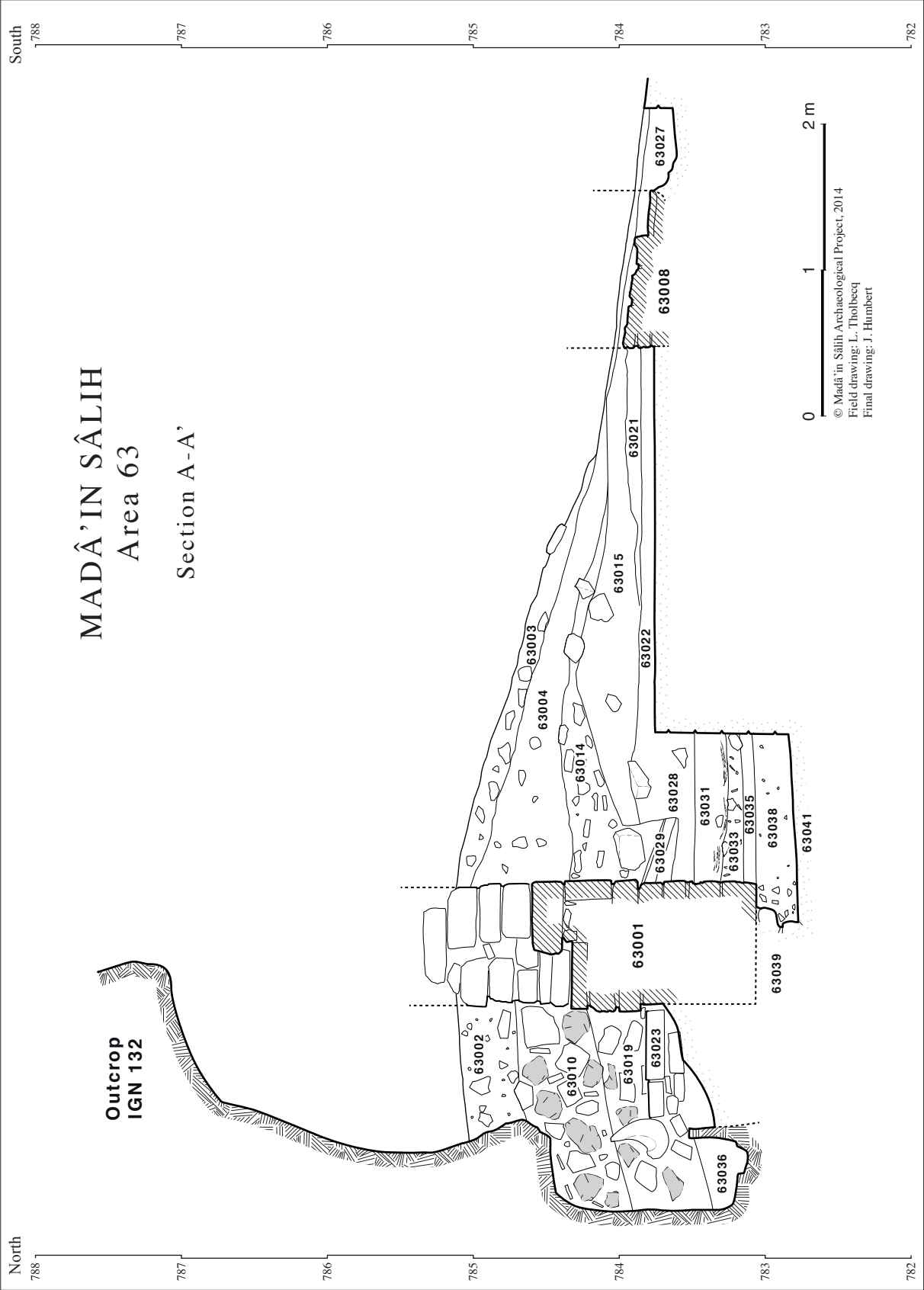


Fig. 4. North-west – south-east section across the excavated area.

Area 65, *Loci* 65000, 65100, 65200

Khalid ALHAITI, Mahmoud AL-HAJIRI, Maher AL-MUSA (SCTA)

Area 65 is located in the north-eastern part of the Residential Area of ancient Hegra, south-west of outcrop IGN 132, not far from its western flank. It is composed of three 4 x 5 m squares which were opened immediately south of the area excavated during the 2011 season (**figs 1–2**). The latter had been divided into squares numbered U27–29, V27–29 and W27–29, the letters being used east-west and the numerals north-south. According to this numbering system, the squares opened in 2014 are numbered W26 (east, M. al-Musa), V26 (middle, Kh. Alhaiti) and U26 (M. al-Hajiri). The area slopes gently from east to west and pottery sherds as well as stones are scattered on the surface, with concentrations in some places.

It was decided to undertake excavations there for several reasons. The first is that it is located immediately south of the 2003 excavation area, where relatively clear structures had been put to light and were thought to extend further south. Second, previous excavation seasons in the area north and east of IGN 132 as well as on top of it had shown the importance of this massif in the Nabataean and later periods. It was therefore assumed that carrying on the excavations in this area would help getting a clearer picture of human occupation in this part of the Residential Area.

AREA 65 (SQUARE W26), *Loci* 65000

By MAHER AL-MUSA, SCTA

This trench is located directly south of square W27. The surface of the square slopes from east to west and from north to south. The highest point is 783.66 m and the lowest one is 783.17 m asl, i.e. there is a difference of *c.* 50 cm between the two. There is a concentration of surface artefacts in the southern part of the square. A few stones of regular aspect can also be seen in the middle. The quality of the soil in the square varies from hard clay, sometimes mixed with small to medium-sized stones as well as silt in the northern part of the square, to friable and loose earth, mixed with desert sand and yellow material which come from the erosion of the sandstone, in the southern part of it.

It is clear that the whole area was submitted to erosion due to rain water coming both from the east and from the top of IGN 132, and this affected the archaeological layers differently according to the kind of material they are made of (clay, silt, stones, etc.). Rain flow also produced cracks and holes and damaged the architectural features by eroding the bricks, stones and mortar with which they are built.

The excavations

The excavations have put to light eleven structures most of which are the continuation of features visible in square W27, or structures which correspond to the phases of occupation identified in 2011, when the baulks between the squares of the 2003 excavations had been removed (see the report of 2011, Introduction).

The phases of occupation

The structures discovered in the square belong to a single phase of occupation, which corresponds to the latest phase identified in the area (see the phasing in Kh. Alhaiti's report below). They belong to one architectural unit which shows homogenous building techniques and has probably one function. Below is a description of the structures put to light in square W26, which are compared to their equivalent in square W27 north of it.

Locus 65001

This is an east-west stone wall (see **figs 2–3**) built with white sandstone blocks in the middle of the square. It deviates slightly to the north-east at its eastern end, which is devoid of stones, possibly because of the effect of erosion and water flow. It is composed of three courses of stone, the upper one only being very clear while only a few stones of the two lower ones are visible. The wall is 3.33 m long, 0.65 m thick and 0.38 m high. Its southern face is covered with a layer of plaster which is made fragile by the water which infiltrates it. It is possible that the thick layer of stones (*locus* 65003) fallen south of the wall is the result of its collapse. It is also probably the case of the stones contained in *loci* 65002 and 65007, north of the wall, especially since some of them are good building ashlar.

For further clarification about the phases of occupation in squares W26–28, we would like to mention that north of this wall there is another wall, in square W27, which is *locus* 1 in the numbering system of the 2003 excavation and *locus* 2 in the numbering system of the 2003, which appeared to be made of three courses of sandstone blocks but which, after the removal of the baulks between squares W27 and W28 in 2011, was completely revealed. Below it were found the traces of two earlier phases of occupation, represented by a mudbrick wall (*locus* 10) discovered below the stones of wall *locus* 2 on its northern and southern faces (**fig. 4**) and, below this mudbrick wall, a stone wall (*locus* 6) which had been partly put to light in 2003 in square W28.

Locus 65006

A few rectangular mudbricks were found in the middle of the western baulk of the square (**fig. 5**). Some of them are clear along wall 65001 while others, further south, seem to be sparse and irregular. They do not continue inside the square because of the presence of destruction layer *locus* 65003, south of wall 65001, which covered completely this part of the square before it was removed. They may, however, continue in neighbouring square V26, to the west, where mudbrick structures were found against the eastern baulk. These are 65126 and 65123, and this hypothesis will hopefully be confirmed next season, when the baulks between the two squares are removed.

Locus 65008

This is a stone paved floor made of well assembled white sandstone slabs, which covers the northern part of the square and comes against the northern face of wall 65001 (see **fig. 2**). It continues in square V26 (*locus* 65113) and it is clearly an extension of the pavement which had been uncovered in square W27 in 2003. The upper level of the slabs is higher in the north-east (783.16 m asl) than in the south-west (783.02 asl) (**fig. 6**).

Locus 65009

This is a rectangular platform made of large rectangular stones laid flat above a hard layer of clay which comes against the northern face of wall 65001 (see **fig. 2** and **fig. 7**) and is immediately above pavement 65008. This platform starts from the western baulk of the square and continues up to the middle of wall 65001 where it stops. The sounding undertaken across the western end of the platform showed that the stones of which it is made continue down to the paved floor. Moreover, platform 65009 and the platform uncovered in 2003 in square W27 are likely to have been built opposite each other. It is also likely that 65009 continued in square V27, where it is possibly related to *locus* 65112. The excavation of this *locus* was not completed in 2014 because of lack of time and will be continued next year.

Locus 65010

This *locus* is composed of the fragments of a large circular stone basin (**fig. 8**) which were discovered above the stone slabs of pavement 65008 as well as in the eastern baulk in the north-eastern part of the square. These fragments belong to the basin which was found in square W27 and they are immediately south of it.

Conclusion

The structures discovered in square W26 are part of an architectural unit to which belong also structures from squares W27 (excavated in 2003) and V26 (excavated in 2014). It corresponds to one phase of occupation the elements of which share the same characteristics.

Wall *locus* 65001 is the equivalent of *locus* 1 in square W27; *locus* 65009 is the equivalent of *locus* 4 in square W27 and floor 65008 continues in squares W27 and V26. Also, the fragments of the stone basin 65010 belong to the basin discovered in W27.

All the identified *loci* belong to the last phase of occupation in this area, except *locus* 65006, in the western baulk of the square, which belongs to an earlier phase and which is probably the equivalent of one of the early phases recognised in square V26, for which see below. Note that the pottery from this area is unfortunately not studied yet and not much can be said for the moment in terms of absolute chronology.

AREA 65 (SQUARE V26), LOCI 65100

BY KHALID ALHAITI, SCTA

This trench is located directly south of square V27, which had been excavated in 2003. It was chosen because it seemed interesting to continue the excavation of some of the *loci* which had been put to light in 2003, particularly the paved floor discovered in W27 (see **fig. 1**). In order to obtain a clear image of the area and ultimately link the *loci* excavated in 2003 with those excavated in 2014, no baulks were left between the squares excavated in 2003 and those excavated in 2014.

The new trench (see **fig. 2**) is 4 m east-west and 5 m north-south. Its top level is 783.51 m. It slopes gently from east to west, reaching 782.94 m in the north-west corner, which is the lowest point, where many stones and artefacts were scattered on the ground.

The excavations

Thirty *loci* were distinguished during the excavations, numbered 65100 to 65130. These *loci* numbers are used to identify architectural units or earth deposits and a general phasing of the occupation sequence they reflect is tempted below.

Settlement phases

Phase 1

It is the oldest phase, represented by 65124 and 65119, which are two *loci* numbers for the same wall (**fig. 9**, section B2). It consists mainly in a 2.50 m long, 0.53 m wide and 0.29 m high stone wall, which extends from the north-west to the south-west corner of the trench (**fig. 10**). It is preserved up to two courses and only the eastern face of the wall is visible in the section. The highest point of the wall, in the north, is at 782.53 m, while the lowest point, in the south, is at 782.24 m (see **figs 1 and 9**).

Phase 2

This phase is represented by *loci* 65126, 65123, 65121, and 65117 (**fig. 11**). The latter is a row of stones (**fig. 12**), 782.82 m, which slopes slightly down to 782.67 m. It may be a wall extending from the center of the northern side of the trench southwards. It is 3.6 m long and it is earlier than Phases 3 and 4 which are above. It intersects with a 4 by 1.10 m mudbrick wall, 65123 (783.06–782.66) which occupies the whole width (east-west) of the trench. Just before they intersect, north of the mudbrick wall built wall, there is a mudbrick floor, 65126 in the middle of which a stone, 65121 seems to belong to wall 65117 and could be a threshold (782.84–782.76 m).

Unlike the Phase 1, where only stones were used, stones and mudbrick structures were used simultaneously in the architectural units of Phase 2.

Phase 3

This phase is represented by a floor made of stone slabs (65113) of different shapes which have an average thickness of 3–4 cm (**fig. 13**). Natural erosion made them thin and fragile. Their top level is at 783.03–783.01 m. It is 2.26 m north-south and 1.84 m east-west. However, it is certain that the slabs continue below the eastern baulk of the trench because they are visible in the trench to the east (*loci* 65000, see Maher al-Musa's report).

Phase 4

This is the latest phase, during which stones and mudbricks were used in the construction of a 2.59 m long wall built at 783.46–783.1 m (65114, 65112, 65109, 65106) (**fig. 14**). It runs eastwards and continues in the neighbouring trench (W26). Its central part was removed in order to put to light the stone slabs of 65113 below.

Findings

Pottery

The pottery from this trench is unfortunately not studied yet.

Stone tools

A few stone tools were discovered:

- 1/ the cone-shaped foot of a stone bowl (783.43 m) from *locus* 65102 (**fig. 15**). The external side of the foot is decorated with series of horizontal and diagonal lines while the internal side is just polished;
- 2/ two fragments of millstone stones (diameter 30–35 cm) which belong to two different *loci*, one of which is under 65121;
- 3/ a 3.5 by 3.5 and 2.5 cm high cubic stone, 65104_S02, found at 782.69 m. Its bottom is flat but its upper surface is hollowed (**fig. 16**). It is probably a mortar;
- 4/ a body fragment of a dark green stone vessel with incised decoration found at 782.23 m in *locus* 65129;
- 5/ half of the circular bottom of a stone vessel found in *locus* 65104 at 782.62 m.

Finally, bones of young animals were found in most of the *loci* but only a few charcoal fragments, mainly from *locus* 65104.

Conclusion

During the 2014 excavations, a number of significant architectural elements were uncovered south of those which had been uncovered in 2003 and associated with them. Following is an attempt to link the 2003 excavations with the 2014 ones.

- 1/ North-south wall 65124 extends northwards beyond the limit of the trench and continues in square V27. If one continues the line of wall 65124 towards the north, it appears that the door at the north-west corner of square V27 belongs to the same architectural unit.
- 2/ Stone slabs 65113 appear in the north-east corner of the new trench but they are most likely the extension of the slabs uncovered in square W27.

In conclusion, it is difficult, for the moment, to link any of the phases distinguished above with the sanctuary built on top of IGN 132. The study of the pottery will hopefully give some clues as to the absolute chronology. It is clear, however, that the whole area covered by the 2003 and 2014 excavations show elements which are associated to each other. It is possible, but not certain, that the phase with the stone slabs (Phase 3) corresponds to the sanctuary phase, where a stone pavement was built under the *tetrapylon* on top of the outcrop.

AREA 65 (SQUARE U26), *LOCI* 65200

BY MAHMOUD AL-HAJIRI, SCTA

This trench is located directly south of square U27, which had been excavated in 2003 (see **figs 1–2**). Like the other squares, it is 4 x 5 m but since it is located to the west of V26 and W26 and since the ground slopes from east to west, its altitude is lower than that of the other squares (between 782.9 and 782.55 m above sea level).

The most prominent structures (see **fig. 2**) in this square are two walls (**fig. 17**):

- 65208, *c.* east-west, which continues in square V26 under number 65123. It is a mudbrick wall, two courses of which are preserved. The lower course is made of stones which are the foundation of the wall and which are laid on floor *locus* 65213;
- 65219, *c.* north-south, which is connected to wall 65208 and continues in square U27. Four courses of this wall are preserved and its northern and southern ends are built with stones. In the middle section of the wall, the four courses of mudbricks (no stone foundation) are laid directly above the bedrock, *locus* 65217.

North of the square, the bottom part of a circular stone basin was put to light. It is 93 cm in diameter and it seems to have been arranged after it had been damaged, possibly because it was used for another purpose. The flat surface of the base of the basin is at 782.38 m, i.e. it is at the same altitude as *locus* 65207. Another sandstone basin, rectangular this time, *locus* 65222 (**fig. 18**), 70 cm long and 20 cm high, was discovered outside the building, south-west of the square, in *locus* 65220.

The structures described above as well as those from the neighbouring square form a 4 x 5 m building unit which was built directly above the bedrock. The latter (**fig. 19**) is made of yellow and friable sandstone and slopes from east to west (altitude 781.69 in the south-west corner). It was therefore possible to build on top of it only after backfilling the area. It should be noted that wall 65201 was built on the bedrock at 781.91 m in the north and 781.69 m in the south. This wall was built before wall 65208 which was erected on layer 65213 at an altitude of 782.12 m, i.e. 40 cm higher than wall 65201. *Locus* 65213 corresponds to an early occupation, associated with many artefacts, particularly green steatite vessels.

Test trench 1

An exploratory test trench, 5 m long, was opened from north to south along the eastern face of wall 65201 (**fig. 20**) in order to trace the foundations of walls 65219 and 65208 and of the east-west wall put to light in square U27 in 2003. At the bottom of the test trench was found the bedrock, which slopes north to south (781.91 to 781.69 m). The test trench confirmed that the foundations of wall 65219 are laid directly above the bedrock and are only composed of with mudbricks (no stones). Also, the foundations of wall 65208 are higher than those of 65219. Finally, the stone foundations 65209 have been laid at an altitude of 782 m, above layer 65213.

Occupation layers

- *Locus* 65213 (it appeared at the bottom of *locus* 65207 at an average height of 782.15 m) is the first of the occupation layers. It is a sandy and relatively soft layer which yielded many bones and fragments of green steatite vessels.
- *Locus* 65207 (it appeared at an average height of 782.50 m) is the second occupation layer and it corresponds to the building of wall 65208. It is also sandy and a little harder than the previous one. It contains a greater variety of artefacts, such as elements of millstones, pestles, stone hammers, fragments of green steatite vessels, bronze coins, one piece of an engraved stone which goes with

another piece found in 65213 (**fig. 21**), many pottery sherds, including the nozzle of a vase with a circular stamp.

Most prominent findings

- A stone fragment found in two parts in *loci* 65213 and 65207, coming possibly from a window, originally rectangular (one corner of it is preserved only, see **fig. 21**). It is decorated with a braided pattern and a garland made of alternating circular and oval-shaped stone beads. A flower with eight leaflets is carved in the centre of the stone. It can be compared with a fragment of a window discovered in a house in Khirbat adh-Dharīh in southern Jordan (AL-MUHEISEN & PIRAUD-FOURNET 2013, fig. 20).
- An alabaster vial the base of which is missing (65207_S06, **fig. 22**).
- A pottery fragment with three arms, flat on the rear. It may have been used as ornament (65207_P01, **fig. 23**).
- A piece of coarse pottery with a circular seal in the shape of a square fan (*locus* 65207).
- Pestles to crush grains and stone hammers (*locus* 65207).
- Parts of green steatite vessels (*loci* 65213 and 65207).
- Two bronze coins (*loci* 65202 and 65207).

CONCLUSION

The phasing of the area as a whole should be given particular attention in the 2015 season. For the moment, it seems that the whole area witnessed four phases or occupation (**fig. 24**), visible mainly in square V26 (*loci* 65100). According to M. al-Mûsa, square W26 witnessed only one phase of occupation, which corresponds to Phase 4 of square V26, i.e. with *loci* 65114, 65112, 65109, and 65106. As for the structures in square U26, and especially walls 65208 and 65219, they seem to belong to Phase 2 of square V26, i.e. *loci* 65126, 65123, 65121, and 65117.

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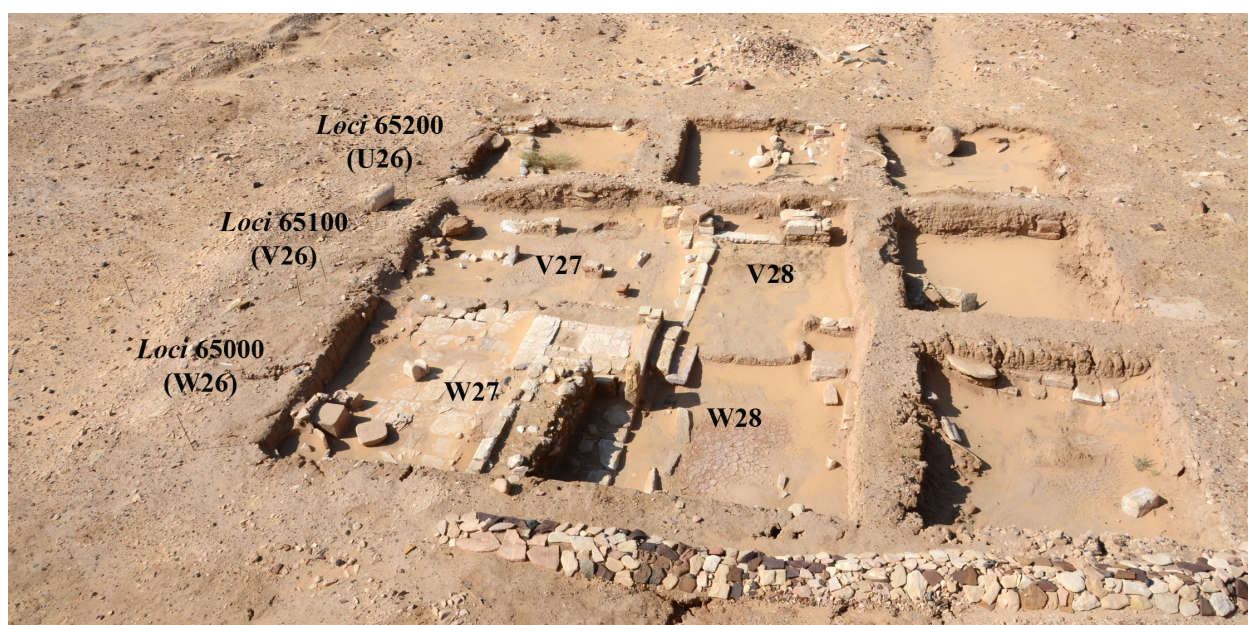


Fig. 1. Area 65000 before excavation, viewed from the top of IGN 132.

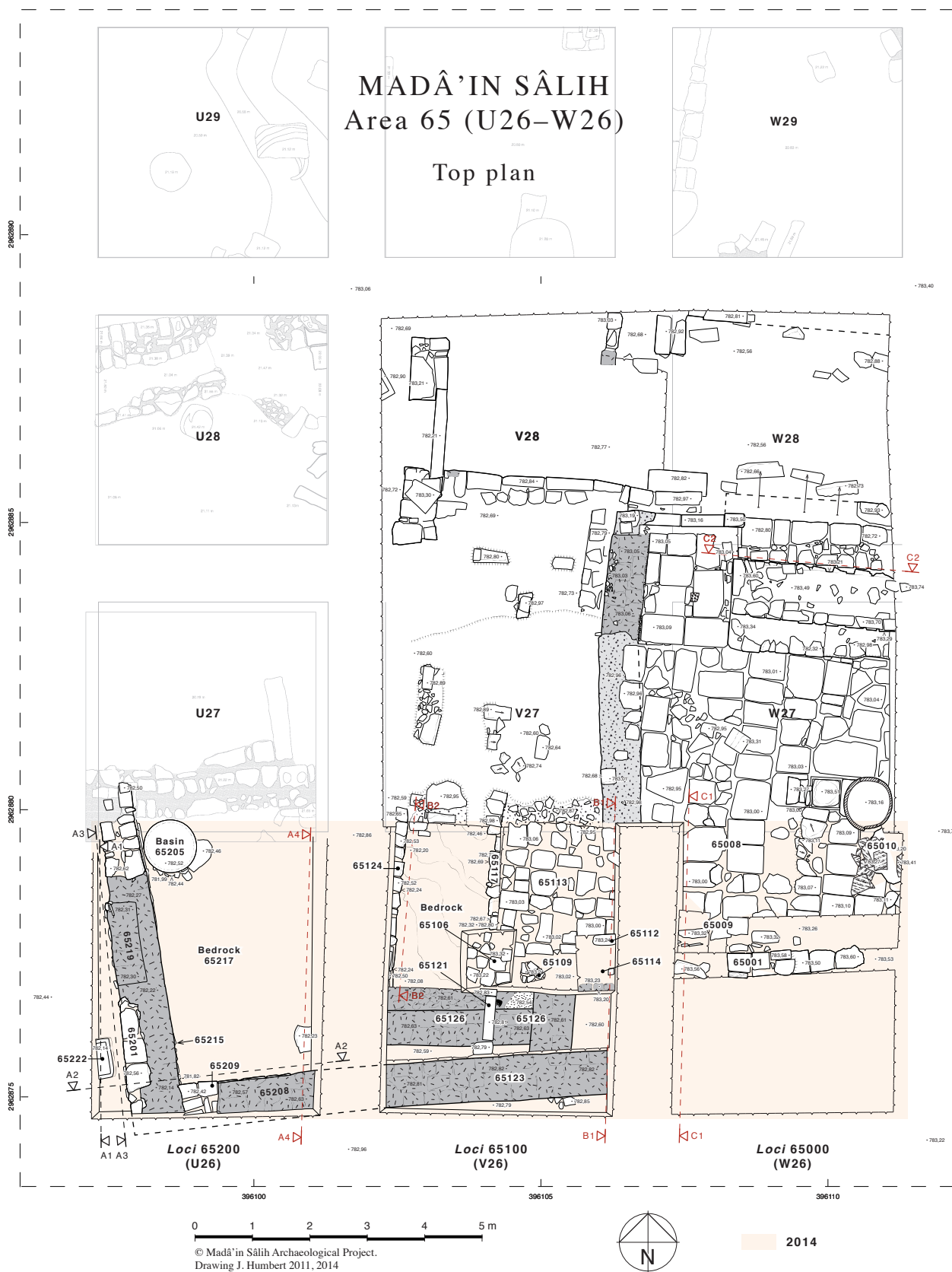


Fig. 2. Top plan of area 65000.



Fig. 3. Wall 65001 in the middle of square W26 from the south-west.

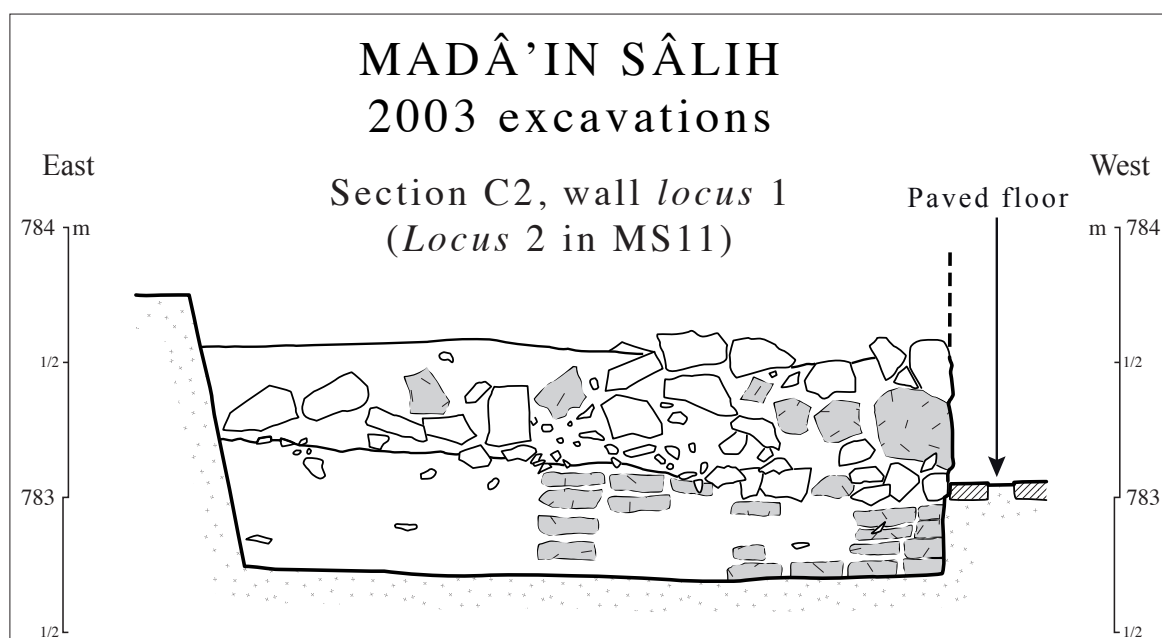


Fig. 4. Section of the northern side of wall *locus* 1 (in the numbering system of the 2003 excavation = *locus* 2 in the 2011 numbering system), between squares W27 & W28 (see fig. 2).

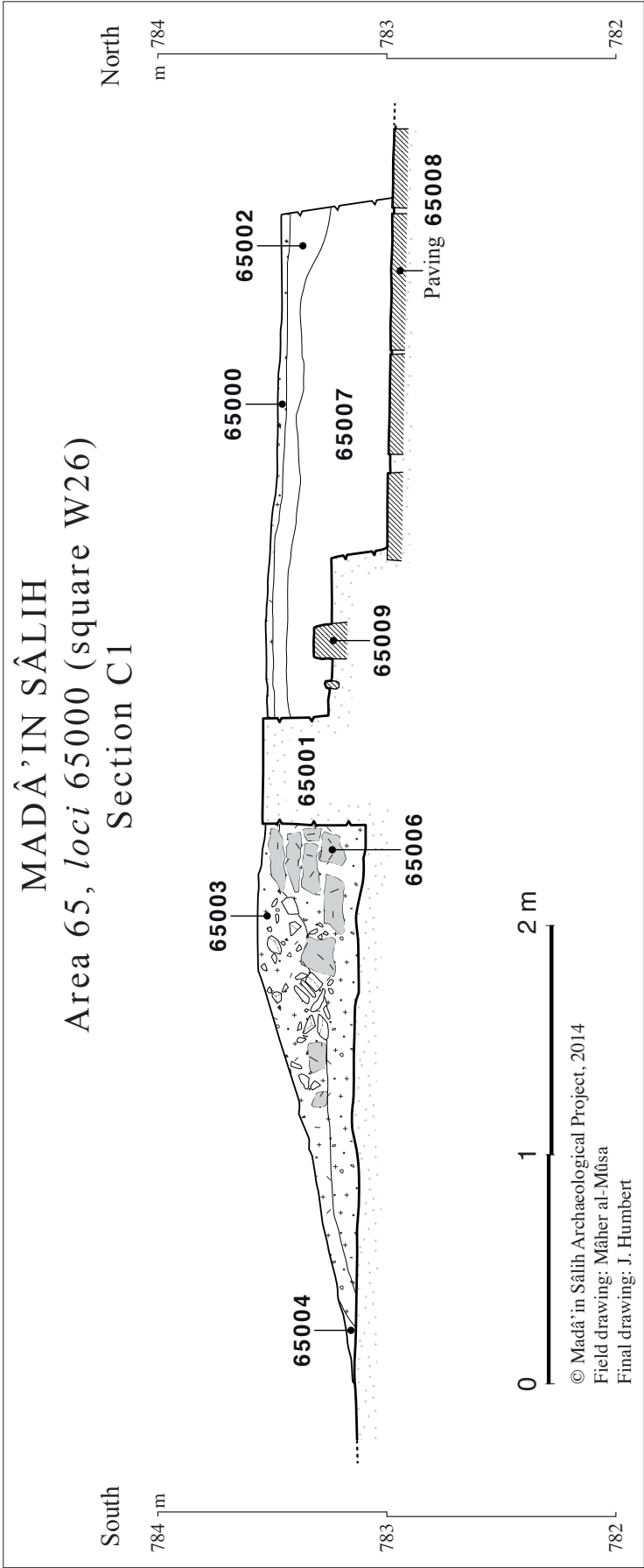


Fig. 5. Section C1, western baulk of square W26.



Fig. 6. Square W26, paved floor 65008.



Fig. 7. Northern part of square W26 and *locus* 65009.



Fig. 8. Square W26, parts of the stone basin 65010.

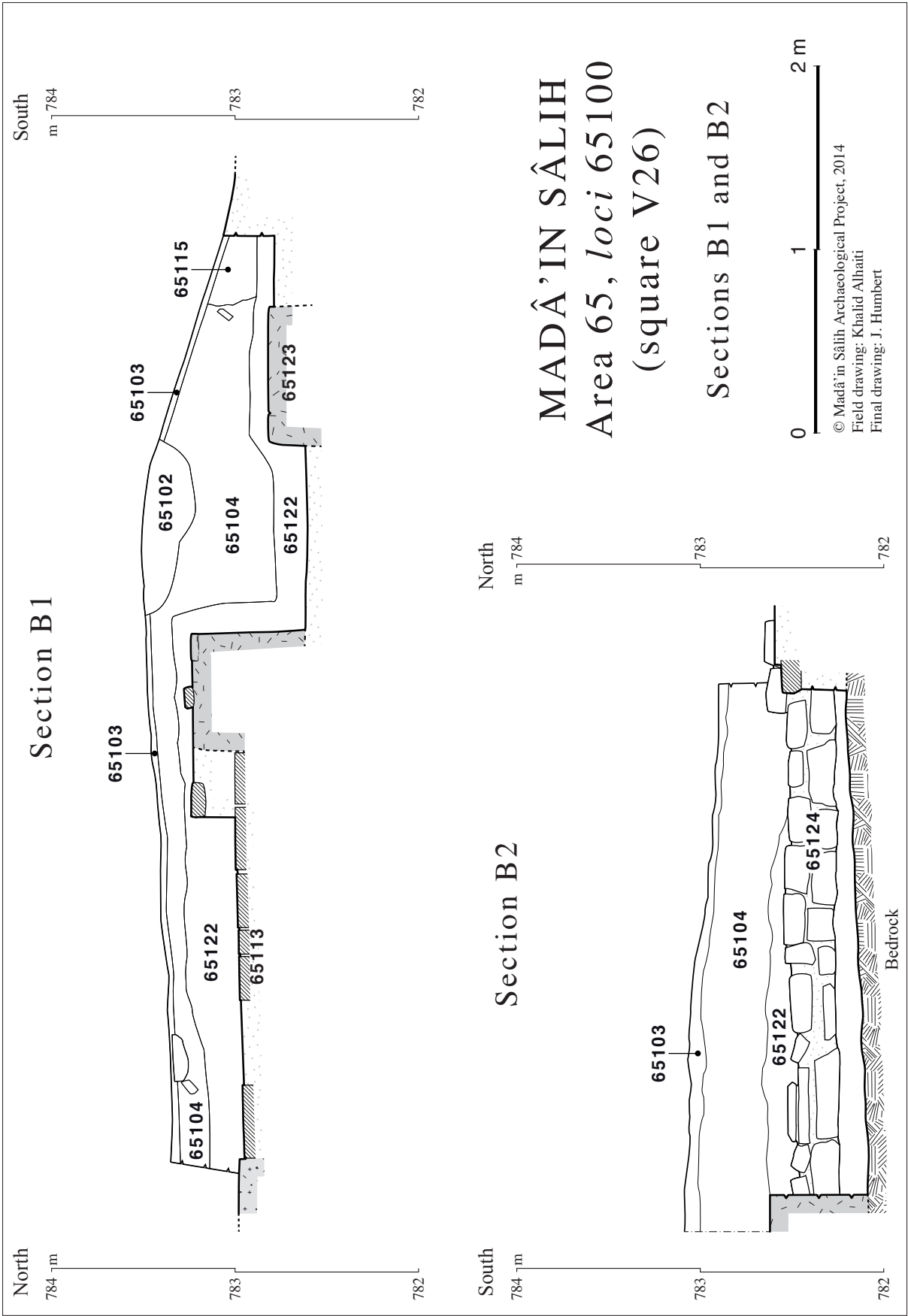


Fig. 9. Area 65100, sections B1 and B2.



Fig. 10. Square V26, wall 65124 viewed from the east.

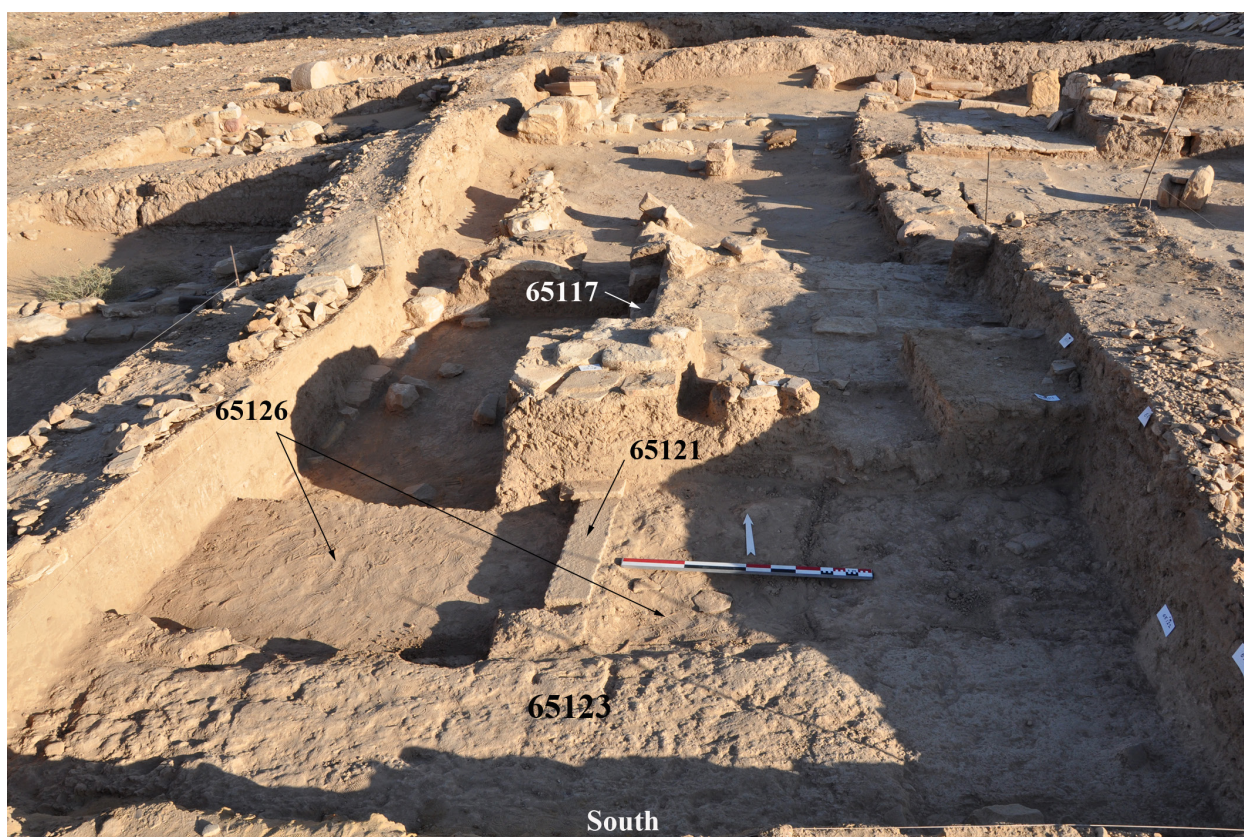


Fig. 11. Square V26, architectural features of Phase 2 (mudbrick wall 65123, mudbrick floor 65126, etc.) from the south.

Fig. 12. Square V26, stone row 65117 viewed from the north.

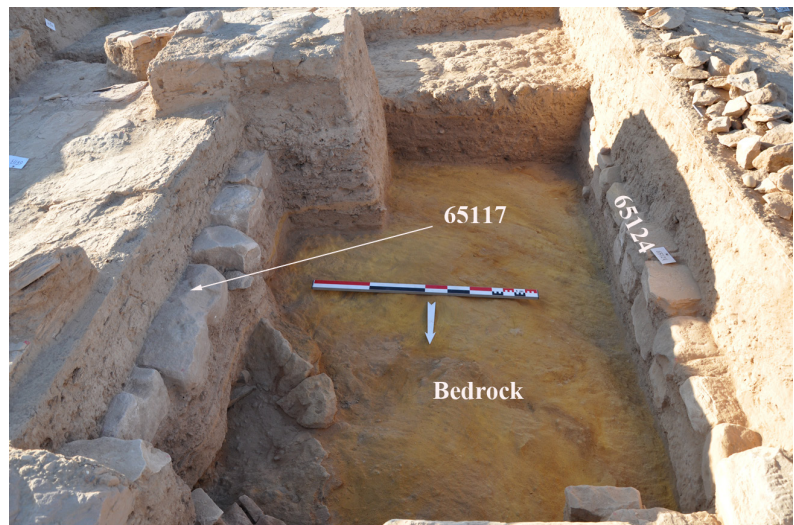


Fig. 13. Square V26, stone slabs 65113 from the north.



Fig. 14. Square V26, wall 65114, starting from the east side of the trench. View from the south.



Fig. 15. Foot of stone bowl 65102_S01.



Fig. 16. Cubic stone 65104_S02.



Fig. 17. Square U26, walls 65208. and 65209.



Fig. 18. Square U26, wall 65201 and stone basin 65222.



Fig. 19. Square U26, the bedrock, *locus* 65217.



Fig. 20. Square U26, trench along wall 65201, with bedrock at the bottom.



Fig. 21. Decorated stone fragment from *loci* 65207 and 65213.



Fig. 22. An alabaster vial 65207_S06.



Fig. 23. Pottery fragment with three arms 65207_P01.



Fig. 24. Area 65000 a little before the end of the 2014 season.

Area 9, Trench C

Jérôme ROHMER (UMR 7041, ArScAn)

The excavations of Area 9 began in 2010. In 2010 and 2011, Z. T. Fiema opened two *c.* 5 x 5 m trenches, trench A and trench B. They yielded a long stratigraphic sequence ranging from the 4th/3rd century BC to the early 4th century AD.¹ Besides, elements of statuary and monumental architecture (column drums, Nabataean capital, lion's head) were found reused in the latest levels, suggesting the existence of an important public building in this area during – and probably after – the Nabataean period.

In 2014, the author of this report has taken over these excavations, with a twofold objective:

1/ achieving a wider exposure of the pre-Nabataean levels;

2/ understanding the monumental architecture of the Nabataean and post-Nabataean periods.

The area excavated during this season is located to the northeast of Z. T. Fiema's trenches. It was chosen because wall lines and column drums showing on the surface suggested the existence of a *c.* 11 m east-west x 8 m north-south rectangular enclosure with an inner axial colonnade (**fig. 1**).

The excavations took place from Jan 18th to Feb 13th 2014. The first two days were devoted to surface scraping along the enclosure's walls, in order to clarify its general layout (**fig. 2**). This revealed that the enclosure is limited to the north, east and south by a wall made of two rows of irregular sandstone blocks, the north-east angle of which has collapsed towards the east. However, this stone wall does not continue on the western side. Besides, the western end of the northern wall (92002) is not entirely made of stone: it features an inner row of stones and an outer row of mudbricks. Three significant breaks are visible in the outer wall: one on the north and two in the south. The northern one (*c.* 2.50 m in width) is a wide entrance and the south-western one (*c.* 1.40 m) is a door, as was later made clear by the excavations. The south-eastern break was not excavated, but given the careful alignment of the blocks on its western side and the presence of a header on its eastern side, it is most probably another door.

Once the extension of the enclosure was ascertained, a 9 x 5 m north-south trench was opened in its western half (**figs 2–3**). The excavations in this trench did not reach the earliest levels, let alone the sterile sand. The level reached at the end of this season is between 60 and 80 cm below the surface. No definitive phasing can be proposed so far.

THE UPPER STRATUM

Architectural layout

The upper stratum lies just under the surface (**fig. 4**). It corresponds to the rectangular enclosure described above. In the west, the excavations revealed that it was limited by a *c.* 0.75 m wide mudbrick wall (*locus* 92021). This wall abuts the northern (92002) and southern (92001) walls, but, surprisingly, it is not aligned with the western end of the southern wall. To the north, the enclosure was accessed through the above-mentioned monumental bay, which has a flat threshold and no door sockets, which means that it could not be closed (*locus* 92026; **fig. 6**). It is 2.75 m wide and its door jambs feature small

1. FIEMA 2010; FIEMA 2011; ROHMER & FIEMA forthcoming.

semi-columns. Surprisingly, it is off-centred from the north-south axis of the enclosure. On the southern side, the two doors are smaller but they are arranged symmetrically about the axis of the building. The south-western door has a threshold (92027) on its northern edge, which means that it had a door opening towards the south.

Inside, the enclosure is divided by a *c.* 0.65 m wide east-west mudbrick wall (92016), thus creating two oblong areas which measure respectively *c.* 3.40 x 9.50 m (north) and 2.90 x 9.20 m (south). Wall 92016 has a wide central bay with a flat threshold and no door (92028). The circular column bases (92025), *c.* 70 cm in diameter, are not freestanding, as was thought before the excavation, but they abut the jambs of this door (**fig. 5**). They were reused and set upside down, which makes it very doubtful that they ever bore additional drums. They are not laid on the threshold but rest on a separate shallow stone foundation. All this forms a monumental bay, *c.* 2.30 m wide and flanked on both sides by large column bases. Unlike the northern bay, it is centred on the axis of the enclosure.

In the northern half of the enclosure, an interesting feature, so far unique at Madâ'in Sâlih, was identified: a staircase (**fig. 6**). Only the first three steps are preserved (92022), but the L-shaped mudbrick base which supported the following steps (92023) is well visible in the corner of the room. This base is interrupted by two side by side stone features (**fig. 7**). The first is a *c.* 70 x 80 cm stone platform (*locus* 92003a) made of two flat stones resting on a foundation of small stones, wedged against the wall with small stones (base at 778.60 m). The second is a shallow compartment limited by upright stones, with a flat horizontal stone at the bottom (92003b; base at 778.68 m). It was filled with a silty soil containing broken pottery, charcoals and ash (92010). The construction technique of this staircase is very similar to that used in the houses of ancient al-'Ulâ (**fig. 8**). In al-'Ulâ, the first steps also rest on a solid base whereas the others are supported by palm tree trunks, leaving a small niche under the stairs. This niche sometimes features a small storage compartment or a trough, as 92003b here (**fig. 9**).

Stratigraphy

The northern area

North of wall 92016, two or three surfaces were identified:

- a possible surface (92039) may have laid directly over the layer of melted mudbrick which seals the lower stratum (see below). It lay slightly under the base of the stairs (778.33 m vs. 778.37 m), and featured a large ash pocket as well as a horizontally laid stone;
- less than 10 cm above 92039, at 778.42 m, a clearer surface was identified (92034, **fig. 6**). It was a relatively hard surface with patches of ash, *c.* 5 cm above the level of the base of the stairs. Above this surface were several layers of soft silt containing a lot of pottery and bones (92033–92024), with occasional patches of sand and pebbles (92030). These layers lay between 778.42 and 778.60 m – i.e. up to the top of threshold 92026. They probably represent a continuous occupation of the area over a significant period of time;
- these layers were sealed by a layer of silt containing fallen stones of various sizes, which probably represents the final destruction of the area (92015; **fig. 7**). Within 92015, a dense concentration of sherds, bones and small stones was isolated around feature 92003 (*locus* 92012; 778.66–778.74 m). It contained fragments of a probably complete jar, which is under restoration (92012_P01). This level was covered, up to the surface, by a thick layer of disuse (hard silt mixed with melted mudbrick) (*loci* 92004–92008).

Surprisingly, the lowest two surfaces lie below the bases of thresholds 92026 and 92028 (respectively 778.50 and 778.48 m). However, these thresholds are about 10 cm above the bases of the walls they belong to, and they rest on a 10 cm thick foundation of small stones. Therefore, they may perfectly have been raised from their initial position in order to catch up with the progressive rise of the ground level in the area.

Conversely, the bottom of feature 92003 and of the destruction layers (92012/15) lie a few centimetres above the top of the thresholds, and *c.* 25 cm above the base of the stairs. Therefore, it seems that feature 92003 was added towards the end of this occupational phase. By that time, both the thresholds and the first two steps of the stairs had been covered with sediment or occupational debris, due to the rise of the ground level.

North of wall 92002

North of wall 92002 and threshold 92026, the excavations did not reach the level of the base of threshold 92026 (778.50 m) due to the lack of space. No clear surface was identified. However, a layer of silty soil containing a lot of bones, pottery and charcoals abutted the threshold (92019; 778.50–778.57 m). It was covered with a 1 to 4 cm thick layer of ash containing pottery and bones (92020; 778.56–778.66 m), which probably represents the final abandonment or destruction of the area. Above this layer was a surface soil composed of alluvial silt, aeolian sand and melted mudbrick (92018).

The southern area

The situation was clearer south of wall 92016. There, under a thick surface layer made of alluvial silt and melted mudbrick (*loci* 92004, 08 and 13), a very clear destruction layer was identified (92014). It contained the fallen elements of the doorframe corresponding to threshold 92027, including a small Nabataean pilaster capital, roughly hewn (**figs 7, 10, 11**). The surface on which these elements collapsed, *locus* 92031, was made of compact silt. A semi-circular fireplace, *c.* 50 cm wide and 20 cm deep (778.46–778.66 m), was found against wall 92016 (*locus* 92029). It was dug from surface 92031 and therefore represents the very last occupation of the area before it was destroyed.

Surface 92031 lay at the base of threshold 92027 (*c.* 778.60 m), but 10 cm above the base of threshold 92028. There is no sign that it was sloping. Therefore, we must assume that threshold 92027 was raised from its initial position during this occupational phase, as suggested by the layer of small stones which raises it by *c.* 17 cm over the base of wall 92001.² Consequently, the layer of silt which lies under surface 92031 and goes down to the base of threshold 92028 (*locus* 92032; 778.50–778.60 m) must represent the occupation of the area before threshold 92027 was raised. Under layer 92032, layer 92036, which goes down to the base of the foundations of threshold 92028 and to the base of wall 92001 (778.42–778.50 m), could represent the very first occupation of the area, before threshold 92028 was raised (see above).

South of wall 92001

South of wall 92001 and of door 92027, a layer of silt containing a lot of small fallen stones bears witness to the final destruction of the area (92017, 778.56–75 m; **fig. 10**). It corresponds to *locus* 92014 north of the wall. Under this layer was a layer of soft silt without stones (92041), covering a very clear surface with horizontally laid stones and sherds, at the base of the threshold (92042; 778.61 m). This surface corresponds to *locus* 92031 north of the door.

The excavations could not proceed much below this level in this narrow area. Under surface 92042, a layer of soft silt with pottery and one coin (92043) was excavated down to *c.* 778.50 m (i.e. still over the base of wall 92001, which lies at 778.43 m). It probably results from the occupation which took place before threshold 92027 was raised.

General phasing of the upper stratum

The following phasing may be proposed for stratum I:

2. The base of wall 92001 (i.e. the top of its foundations) lies at 778.43 m.

Sub-phase number	Event(s)	North of wall 92002	Northern area	Southern area	South of wall 92001
1	First occupation of the enclosure	?	92039/35, 34, 33	92036	?
2	Thresholds 92026 and 92028 raised	92019	92030/24	92032	92043
3	Threshold 92027 raised; feature 92003 built	92020	92012/15	92031/29	92042/41
4	Enclosure destroyed			92014	92017

Table 1. Phasing of the upper stratum.

Dating

According to the pottery study, all the layers and surfaces belonging to the upper stratum yielded ‘Late Roman/Byzantine’ (sic) pottery, with occasional residual sherds from the 1st century AD. No sherds are ascribed to a ‘Late Byzantine’ (sic) horizon (5th–6th century AD). *Locus* 92043 (sub-phase 2 in the table above) yielded a Roman city-coin probably dating to the early 3rd century AD (92043_C01) and *locus* 92014 (sub-phase 4, i.e. final destruction) yielded what seems to be a tetrarchic *folles* (c. 300 AD).

Since the latest sherds of the lower stratum provide a *terminus post quem* around 50–150 AD, the time span of the upper stratum must probably be dated between the late 2nd and the 4th century AD.³

Interpretation

The enclosure of the upper stratum features several reused monumental elements, such as semi-columns (jambs of bay 92026), column bases (92025) and a small Nabataean capital (92014_S01). These elements can be added to the finds of the upper levels of trench B excavated by Z. T. Fiema in 2011 (a large Nabataean capital, a lion’s head, fallen or reused column drums) and confirm that there was an important public building in the area during the Nabataean period.⁴

However, the width of bays 92026 and 92028 and their elaborate decoration (though with reused elements) indicate that the upper stratum building was also of particular importance. Unfortunately, the excavations have provided no clue to its function. No particular installation or object was found in the layers of the upper stratum. The small finds are common (pottery, glass vessels, beads) and do not suggest a particular degree of wealth. Besides, except for the bays, the architecture is not particularly sophisticated: there are no pavements, no well-beaten floors, no traces of wall coating, etc. The southern area even featured a wide fireplace (92029), which is reminiscent of domestic areas.

How can we account for this discrepancy between clear monumental markers and relatively modest traces of occupation? The most likely hypothesis is that the structures of the upper stratum were open-air forecourts leading to an important room or building. This is confirmed by the fact that bays 92026 and 92028 could not be closed – which would be strange in the case of roofed rooms. The important building or area these

3. Interestingly, our pottery specialists identified as ‘Late Byzantine/transitional’ (5th to early 7th century AD) some sherds found in a small area located near the south-west corner of the trench, between wall 92021 and the western baulk. This *locus* (92009; 778.68–778.98 m) was made of very soft organic soil with much pottery and animal bones. It was associated with a stone basin located out of the excavated area (92048) and corresponds to the final occupation or destruction of the area located to the west of wall 92021. Since the bottom of this layer and the base of the basin are just a few centimeters above the altitude of surface 92031 (778.60 m), on the other side of wall 92021, it probably represents the same episode of destruction. Therefore, given that there is no positive evidence for an occupation of the site after the mid-4th century AD, the date of this ‘Late Byzantine/transitional’ material may have to be reviewed. Samples from this layer will be sent for ¹⁴C analyses next year.

4. FIEMA 2011: 188–190.

forecourts led to may have been either in the north or in the south. The fact that door 92027 opens towards the south indicates that there was a closed room or building there.

THE LOWER STRATUM

The lowermost surfaces of the upper stratum rest on layers of hard melted mudbrick: *locus* 92040 in the northern area (778.18–778.34 m) and *locus* 92038 in the southern area (778.36–778.42 m). These layers, which seem to result from the destruction of the mudbrick walls, seal the lower stratum (figs 12–13).

Architectural layout

The walls of the lower stratum are mostly built in mudbrick, except wall 92046, in the south, which is made of irregular sandstone blocks. This wall, however, may have had a mudbrick superstructure which melted or was razed. All mudbrick walls were razed down to an altitude comprised between 778.15 and 778.26 m. Only wall 92046 is preserved to a slightly higher level (778.36 m) – precisely because its lower courses are made of stones.

The excavated area is not wide enough to allow a full understanding of the architectural layout of the lower stratum (fig. 12). Walls 92053 and 92060 in the north and wall 92046 in the south seem to define a c. 4 m wide built-up area, divided in two by wall 92050. Note however that the existence of wall 92060 is not entirely certain, it will have to be ascertained during the next field season.

Stratigraphy

In the south-western area (no. 1 on the plan), under the melted mudbrick of *locus* 92038, a 5 to 10 cm thick layer of soft silt containing a lot of pottery and bones (92045) covered a surface with scattered sherds and stones (92049, 778.28 m), abutting walls 92046 and 92050 (fig. 13). This surface yielded, among other finds, a complete moulded lamp with erotic decoration (92049_P01, see fig. 6 p. 203). It lay over a layer of relatively compact silt with few artefacts, which may represent either a bedding for the floor or an episode of disuse (92051).⁵ North of wall 92016 (no. 1b), several stones were laid in the corner of walls 92050N and 92053, indicating the existence of a surface (*locus* 92061; fig. 14). Though 10 cm lower (778.18 m), this surface may be the continuation of 92049. It rested over a layer of silt with little material (92052), which may represent either a bedding for the floor or an episode of disuse.⁶

In the south-eastern area (no. 2), the base of a c. 55 cm wide circular basin (92044) set over a square flagstone abutted wall 92050 (fig. 13). It was filled with ash. It rested on a surface with scattered stones, at an altitude of 778.22 m (92059). This surface was covered with a c. 7 cm thick layer of soft silt probably representing the residues of an occupation (92058).⁷ North of threshold 92027 (no. 2b), a layer of soft silt possibly representing the same occupation lay approximately at the same altitude (92055; 778.15–778.23 m). It lay over a layer of relatively compact silt containing little material, which may represent a phase of disuse (92057).⁸

In the northern area (no. 3) – i.e. north of walls 92053 and 92060 – an occupation layer made of organic soil and ash and containing pottery, bones and charcoals, was found between 778.13 and 778.27 m (*locus* 92054). It lay over a layer of relatively compact silt, with little material and no ash, which may represent a phase of disuse (92056).⁹

5. The excavations stopped within this *locus*, at c. 778.24 m.

6. The excavations stopped within this *locus*, at c. 778.04 m.

7. In this area, the excavations stopped at surface 92059 (c. 778.22 m).

8. The excavations stopped within this *locus*, at c. 778.06 m.

9. The excavations stopped within this *locus*, at c. 778.06 m.

Dating

Since the lower stratum was excavated at the end of the field season, only the pottery from *locus* 92049 (surface in the south-west area) could be studied. It yielded a complete Roman lamp with erotic decoration, which can be dated broadly between 50 and 150 AD (92049_P01), as well as many fragments of local common ware which fit into a 1st century AD horizon.

Therefore, the latest occupation of the lower stratum must be dated to the second half of the 1st century or the first half of the 2nd century AD – i.e. to the end of the Nabataean period and/or to the beginning of the Roman period.

CONCLUSIONS

Area 9 and the occupational history of Hegra

To sum up, the excavations of trench C have so far led to the identification of two successive strata. The end of the lower stratum, in the late 1st century AD or the first half of the 2nd century AD, was probably caused by a destruction or by a major natural disaster, since all the mudbrick walls were razed to the ground. We do not know how long after this destruction the area was rebuilt, but it seems that it was some time later because the upper stratum was built on a different – though similarly oriented – layout. This scenario is strongly reminiscent of what was observed in the northern part of Area 2, where the mudbrick structures of phase 2 were razed to the ground in the late 1st century or early 2nd AD, and were replaced by the stone walls of phase 3 after some time.¹⁰ Therefore, a destructive event seems to have affected several parts of the site at this time. Interestingly, the second and third quarters of the 2nd century AD seem to represent a hiatus in the epigraphic, numismatic and ceramic records. This may reflect a decline of the site in the aftermath of this destructive event.¹¹ Another clue to this phase of decline may be the need to restore the city-wall in 175/177 BC.¹² However, there is no firm reason, in the current state of knowledge, to relate the destruction and subsequent phase of decline to the Roman annexation of the Nabataean kingdom.

Concordance with trenches A and B

Whatever the length of the abandonment which followed the destruction of the lower stratum, the pottery and the coins make it very difficult to date the beginning of the upper stratum before the second half of the 2nd century AD. However, such a dating is at odds with the phasing of trenches A and B.

Trenches B and C are well connected architecturally and stratigraphically, since wall 92001 is the continuation of wall 91004 in trench B (figs 2, 4).¹³ It is not strictly speaking the same wall, since there is a clear break in the masonry with a slight change of orientation 30 cm to the west of trench C, but both walls seem to belong to the same architectural phase, especially since their bases and their thresholds lie almost exactly at the same altitude.¹⁴ Besides, the presence of a Nabataean capital (91007) just before the western jamb of the door of 91004, at the level of the base of the threshold, clearly indicates that this wall was in use during the post-Nabataean phase.

The problem is that in trench B, the construction of wall 91004 is ascribed to phase 7a, which is dated between the late 1st century BC and the mid-1st century AD, whereas in trench C, 92001 belongs to the upper stratum

10. ROHMER 2011: figs 30–31.

11. There are no dated inscriptions between AD 126 and 175–177. Likewise, there seems to be very few pottery imports of the 2nd century AD: most notably, Nabataean painted wares of types Schmid 3c and 4 are virtually inexistent at the site (DURAND & GERBER 2014). In the numismatic record, there also seems to be no or very few coins which can be dated to this period.

12. VILLENEUVE 2010: 159–160.

13. FIEMA (2011: 178) has first underlined the connection between this wall and the structures of trench C.

14. The base of wall 91004 lies at 778.48 m, vs. 778.43 for 92001. The top of threshold 91009 (in wall 91004) lies between 778.73 and 778.76 m, vs. 778.76 m for threshold 92027 (in wall 92001).

(late 2nd–4th century AD). Can we imagine that wall 91004 was built in the 1st century AD and continued into existence until the 3rd/4th century AD? Such an architectural continuity is unlikely in the light of the stratigraphy of trench C, which shows a very clear architectural break between the 1st century AD structures (lower stratum) and the 3rd/4th century AD ones (upper stratum). In trench C, all the 1st century/early 2nd century AD walls were razed to the ground (top between 778.15 and 778.36 m). They lie at least 80 cm below the top of wall 91004 (779.17–779.23 m) and at least 12 cm below its foundations (778.48–778.50 m). In order to solve this problem, one may suggest that the 1st century AD wall in trench B was wall 91028 (top at 778.26, i.e. at the same altitude as the walls of the lower stratum in trench C) or wall 91029, not wall 91004.

Future fieldwork

In conclusion, the excavations of trench C have raised several important questions, which will have to be addressed in the next field seasons. First, in order to understand the organisation and the nature of the post-Nabataean/pre-Islamic monumental building (rich house? public building?), the excavation area will have to be expanded. Since the two excavated courtyards seem to lead to a closed building in the south, extending towards the south seems to be the most promising option. Second, in order to complete the stratigraphic sequence down to the pre-Nabataean levels, the excavations will also have to proceed in depth within the area which was excavated in 2014.

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Fig. 1. Kite view of Area 9 before the 2014 excavation season.

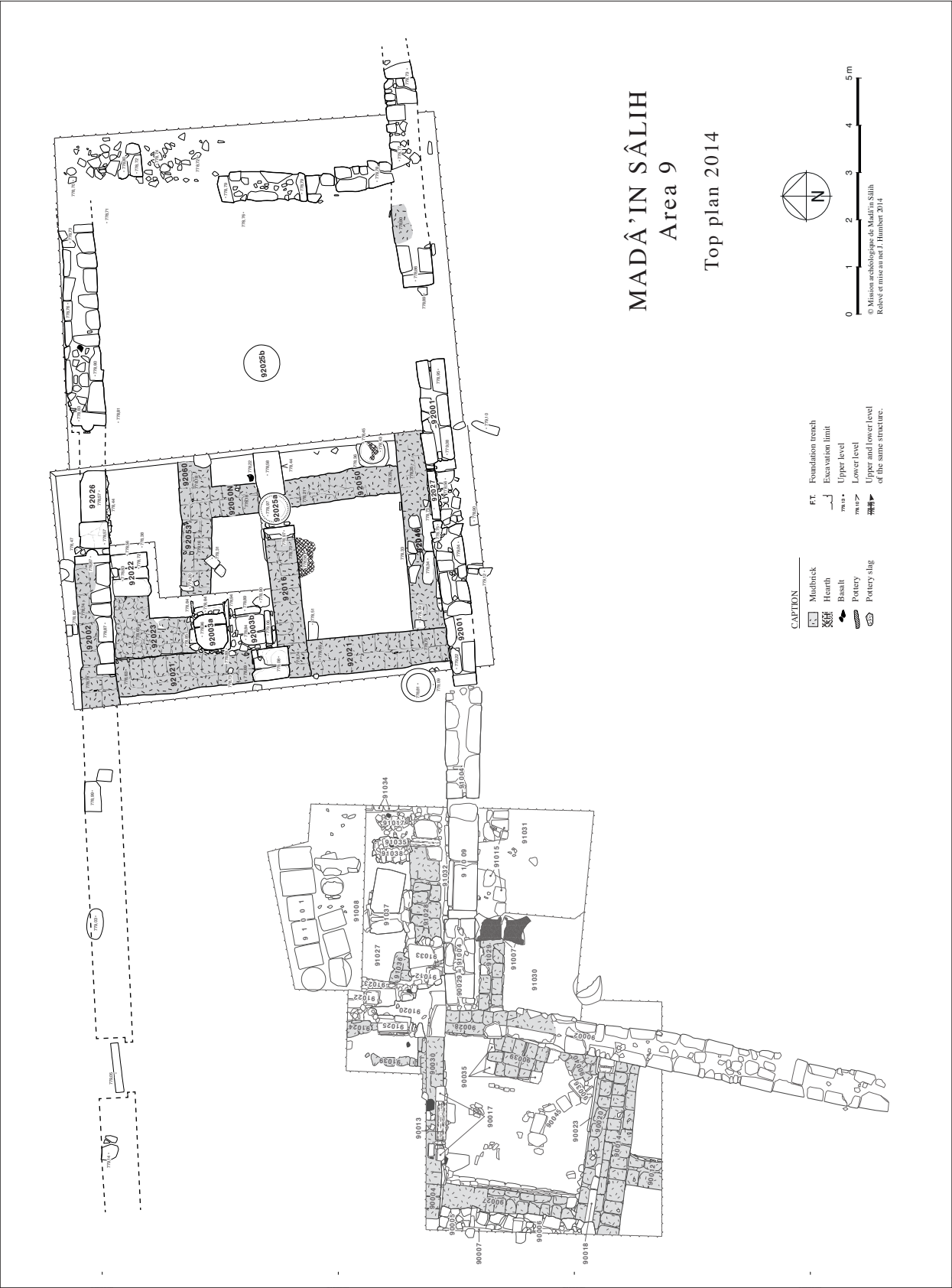


Fig. 2. General plan of Area 9.

Fig. 3. Trench C at the end of the 2014 season.
View from the north.

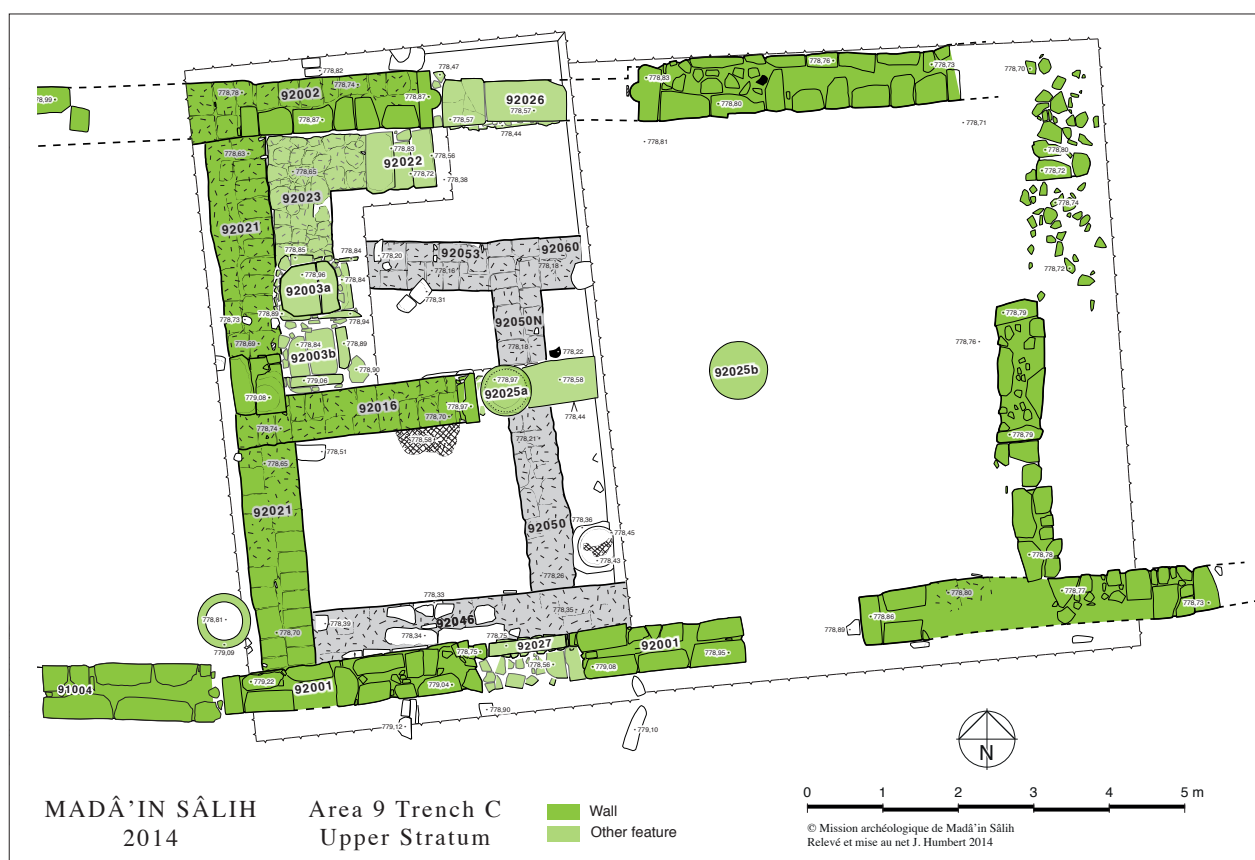


Fig. 4. General plan of trench C, with upper stratum in green.



Fig. 5. Column base (92025a) laid upside down on the western side of the central bay 92028. View from the north.



Fig. 6. Upper stratum: view of the northern area from the north. In the foreground, wall 92002 and bay 92026. Behind, L-shaped stairs 92022/92023, and feature 92003. In the background, wall 92016 and bay 92027. Inside the room, surface 92034.



Fig. 7. Destruction layers of the upper stratum, viewed from the west. On the right (southern area), destruction layer 92014. In the left half (northern area), feature 92003 and destruction layers 92012/92015. Photograph and mosaicking by Y. Gayet.

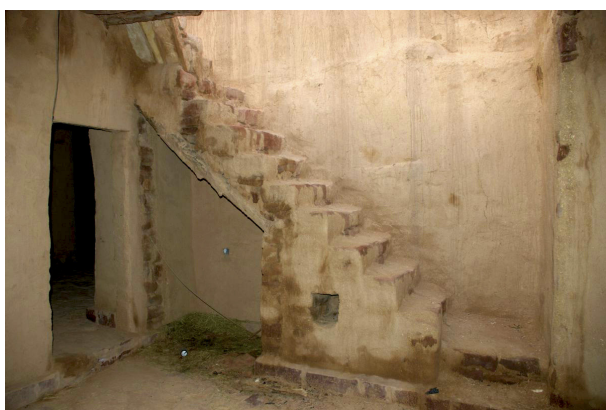


Fig. 8. Stairs in a house of ancient al-'Ulâ.



Fig. 9. Stairs in a house of ancient al-'Ulâ: note the storage compartment or trough under the stairs.



Fig. 10. View of destruction layer 92014 from the southeast. In the very foreground, before threshold 92027, destruction layer 92017.



Fig. 11. Destruction layers of the upper stratum, viewed from the south. In the lower half, destruction layer 92014 containing the fallen elements of door 92027 (southern area). In the upper half, destruction layer 92015. Photograph and mosaicking by Y. Gayet.

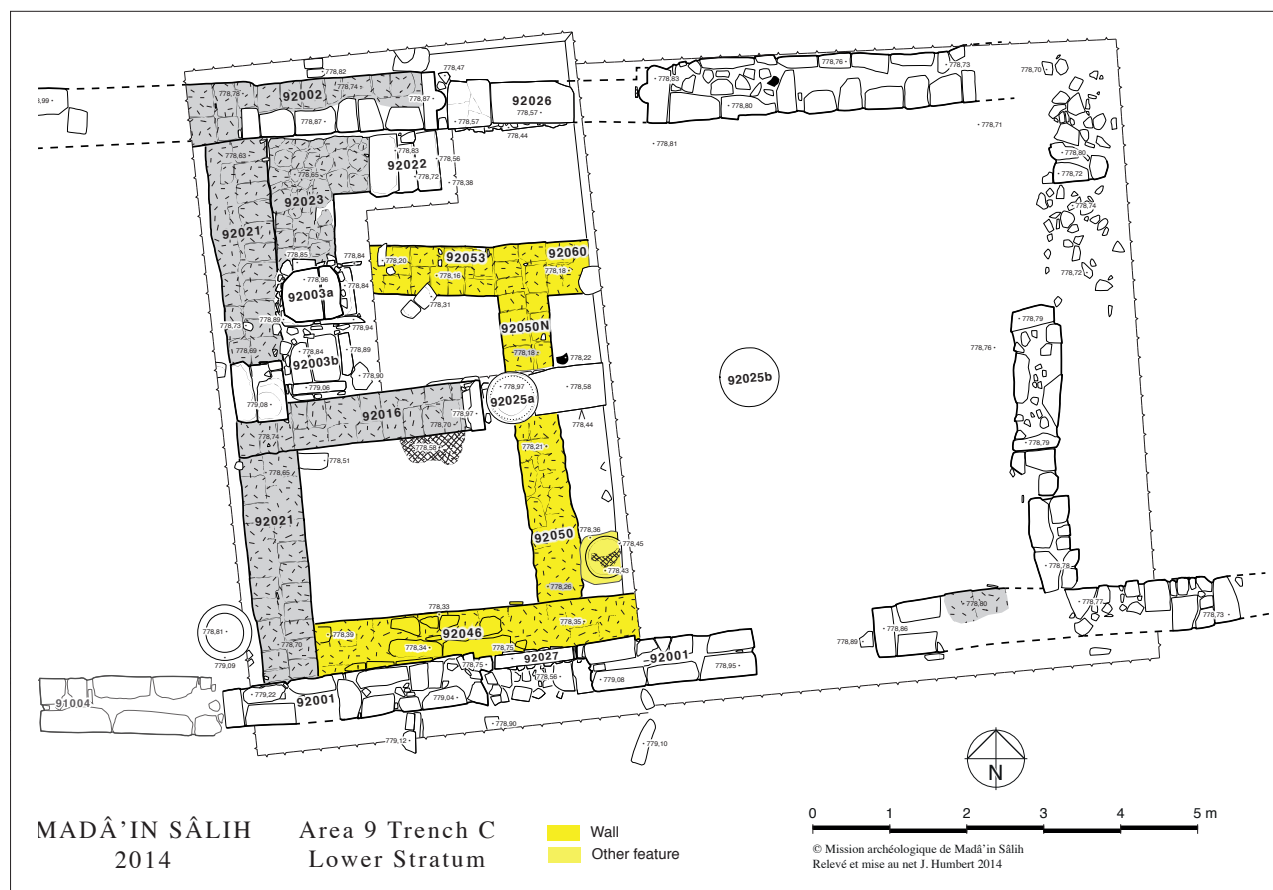


Fig. 12. General plan of trench C, with lower stratum in yellow.



Fig. 13. Remains of the lower stratum in the southern half of the trench (view from the east). In the foreground, stone basin 92044 abutting mudbrick wall 92050. Behind wall 92050, surface 92049. On the left, in the shadow, wall 92046.



Fig. 14. Remains of the lower stratum in the northern half of the trench (view from the east). In the center (under the meter), stones of surface 92061 in the corner of walls 92050N and 92053. In the lower right corner, occupation layer 92054 under excavation (ash).



Fig. 15. Remains of the lower stratum in the northern half of the trench at the end of the season (view from the east).

Archaeological Fieldwork on the Nabataean Tombs

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Archaeological fieldwork implemented in 2014 on the monumental Nabataean tombs was contingent on three factors:

– a re-examination of the question posed during the first season of excavations in 2008:¹ ‘do the monumental tombs date only to the Nabataean period or can several phases of occupation be distinguished inside the burial chambers?’. Results of excavations undertaken in 2008 on a tomb, IGN 125, belonging to the first phase of occupation of the cliffs on the site were disappointing,² and in 2014 it was decided to excavate another tomb, IGN 103, which also belongs to the oldest type. It comprises a burial chamber located high on the rocky face containing pit graves dug throughout the interior of the chamber (**figs 1–2**).

– robbing: in 2012 and 2013, it was noted that tomb IGN 88, in Jabal al-Khraymāt, was regularly visited and that robbing was a serious threat. The fact that following these visits fragments of leather and textile as well as bones in very good state of preservation were observed on the surface, convinced us that it was necessary to excavate this tomb in order to collect all the archaeological material still remaining. Moreover, during excavation of IGN 88, visitors to the site informed us that robbing had taken place in tomb IGN 97, a small distance away in the same Jabal. Having inspected the extent of the robbing (**figs 3–4**), it was decided to excavate this tomb as well.

– finally, during excavation of IGN 117 from 2008 to 2011, Isabelle Sachet and the author proposed the hypothesis that there was another tomb located between IGN 116 and IGN 117. In order to prove the existence of this tomb, it was decided to remove part of the sand covering this part of the massif (**fig. 40**).

EXCAVATION OF TOMB IGN 103

IGN 103 was chosen for two reasons: first, it is located in a massif that receives fewer visitors than Jabal al-Ahmar and Qasr al-Bint; and second, its central graves were still filled with sand. Another contributing factor is that among the tombs located in the massif (**fig. 1**), IGN 103 seemed to be the least exposed to the elements, as was confirmed during a heavy storm. As in IGN 125, only the side graves on the left (**fig. 6**: SF1, east), right (SF7, west), and at the back (SF4, south) appeared to have been partially cleaned (?). The central graves and the smaller graves SF8 and SF9 being filled with sand, this led us to hope that archaeological material would be uncovered *in situ*.

IGN 103 is accessed via a doorway located c. 3 m above the ground. It consists of a square main chamber, 2.5 m², into which have been dug four large graves and two smaller ones. The chamber extends on three sides into alcoves also containing graves. Six graves, SF1,³ SF2, SF3, SF5, SF8, and SF9, were thoroughly cleaned and a test trench opened at the south-western end of SF6. Grave SF4 was not excavated as it had already been partially emptied.

1. DELHOPITAL & SACHET 2010: 207.

2. *Ibidem*: 209–210.

3. Although it had been partially cleared either by robbers or by the Department of Antiquities.

General observations

The thin upper layer did not contain much modern waste. The rest of the fill was made up of older debris containing a large quantity of human bones. All the graves contained bones in variable quantities, fragments of sandstone from the original capstones, and some sherds including a few Nabataean, one Hellenistic, and one late Roman or Byzantine.⁴ Grave SF1 contained pieces of wood. The graves were filled with a compact brown sandy alluvium, probably the result of aeolian activity.

Grave SF1 (*loci* 50410 and 50411) measures 2.10 x 0.75 m and is 0.85 m deep. It contained a large number of bones with, at the bottom, pieces of wood, possibly from a coffin or some kind of wooden frame (50411_W02, **fig. 7**), as well as fragments of thin roping (50411_T01, **fig. 8**).

In Grave SF2 (*loci* 50406 and 50407), which measures 2.10 x 0.65 m and is 0.91 m deep, numerous bones and a few sherds were uncovered.

Grave SF3 (*loci* 50406 and 50407), of medium size (1.83 x 0.52 m and 0.37 m deep), contained one sherd and some bones, including foot bones *in situ* at the north-eastern end.

In Grave SF5 (*loci* 50402 and 50403), which measures 1.81 x 0.58 m and is 0.34 m deep, a large number of human bones were discovered but no articulation was observed (**fig. 9**).

A test trench was opened in grave SF6 (*locus* 50408) (2.12 x 0.76 m and 0.80 m deep), but very few bones were found. Due to the limited quantity of archaeological material found in the test trench, it was decided not to excavate the remainder of the grave into which part of the ceiling had in any case collapsed (**fig. 10**).

Graves SF8 (*locus* 50412) and SF9 (*locus* 50405) are smaller than the other graves in the chamber and measure 0.82 x 0.20 m (depth 0.21 m) and 1 x 0.51 m (depth 0.16 m) respectively (**figs 11–12**). The hypothesis had already been proposed, during excavation of IGN 125, that these graves might have been reserved for infant burials, and a humerus belonging to a child aged between 1 and 4 was indeed discovered in one of them.⁵ The discovery, in grave SF9 of tomb IGN 103, of the skeleton of a juvenile *in situ* (**fig. 13**) confirms this hypothesis. It is possible that some of the small graves were also used for secondary inhumation⁶ but it is not possible to confirm this, as this practice is not attested in Nabataean culture. It should, however, be borne in mind that all the graves in this tomb were robbed and one cannot therefore exclude the possibility that the graves were reused.

Grave SF8 was filled with sand and did not contain any material.

It was difficult to analyse the archaeology of the remains because of previous robbing of the tomb. No individual was found *in situ* in graves SF1 to SF8. Small bones, such as carpal bones and phalanges, were found, allowing us to suggest that they belonged to a primary burial. They are probably multiple burials with each grave containing several individuals, but the length of time between each inhumation cannot be determined. The disturbances suffered by these graves prevented us from undertaking a more detailed analysis.

By contrast, the discovery of a skeleton (*locus* 50405) in grave SF9 (**fig. 13**) did allow a more detailed study. During excavation, only one stratigraphic unit was identified in this grave.

Locus 50405 consisted of a fairly compact brown sandy alluvium mixed with a few stones. The skeleton was undisturbed and its general topography was preserved, although poor conservation of the bones – possibly due to a major flow of water caused by heavy rain – makes their interpretation difficult.

The skeleton was oriented north-west/south-east, with the head to the north-west. The individual was lying supine with the lower limbs extended. The grave contained some artefacts consisting of a bronze

4. See C. Durand's report in this volume.

5. DELHOPITAL & SACHET 2010: 210.

6 i.e. bones in secondary deposition that have been regrouped after they were removed from the original deposition, and reinterred nearby.

bracelet (50405_M01) (**fig. 14**) near the left arm and about twenty glass beads⁷ (500405_G01) (**fig. 15**) near the feet. The bracelet is similar to one found at Qaryat al-Fâw dated to the first-third century AD.⁸

Anthropological study of tomb IGN 103

The poor conservation of the material, robbing, and cleaning undertaken by the Department of Antiquities all contributed to a distortion of the results. The MNI obtained does not, therefore, reflect the actual number interred within the tomb.

At least nineteen individuals were interred in this tomb: fourteen adults (MNI determined from the talus), including one male, and five juveniles: two infants (under 1 year old), two aged between 1 and 4 (including the individual discovered *in situ*), and one adolescent.

The height of the individuals varies between 1.57 and 1.82 m (heights determined using eight metrics).

<i>Bones (margin of error in cm)</i>	<i>Gender</i>		
Humerus (± 4.83)	Indeterminate	1.65	1.75
Radius (± 5)	Indeterminate	1.66	1.82
Ulna (± 5.09)	Indeterminate	1.62	1.82
Femur (± 4.13)	Indeterminate	1.57	1.57

Table 1. Height of individuals in metres.

TOMB IGN 88

This is a small tomb (3 m high and 2.5 m wide) with a façade crowned by one row of crowsteps (**fig. 16**). Large pieces of wood and leather found inside in 2012 indicated its archaeological potential. The burial chamber, which is irregular in shape, measures 6 x 3.5 m and includes a small recess in the back wall. The tomb having been robbed and the recess emptied, no associated material was found. The burial chamber was filled with sand to a height of 30 cm. Modern debris was found only on the surface. The presence of a large amount of caprid and carnivore faecal waste is evidence that the chamber was used to keep sheep. A large quantity of bones, very well preserved fragments of wood, leather, and textile as well as resin and some first-century AD sherds were found in the sand. The textile (**figs 17–18**) and leather (**figs 19–20**) fragments are similar to those discovered in IGN 117. These artefacts probably come from wooden coffins or shrouds.

Two of the finds were more unusual. The first was part of a necklace and consisted of four seeds strung on a thread, 50420_V01 (**figs 21–23**), not unlike the date necklace found in IGN 117.⁹ The seed necklace, like the date necklace, was found encased in resin on which the impression of a textile weft was visible. The second object has never been seen before in the tombs of Madâin Sâlih and consists of small shells sewn onto pieces of leather, 50421_Sh01 (**figs 24–25**). A total of about forty shells were counted, seven of which were found still sewn onto the leather. The shells had been perforated so they could be sewn. They were probably used to decorate the shrouds.

Anthropological study of tomb IGN 88

The bone material found in tomb IGN 88 was well preserved. As for the previous tomb and for the same reasons, the MNI does not reflect the actual number of individuals interred in the tomb.

7. As sifting of the sediment in grave SF9 was not completed during the 2014 season, it is possible that the number of beads is higher.

8. AL-GHABBAN *et alii* 2010: 350 fig. 182.

9. For which see now BOUCHAUD, SACHET, DAL-PRÀ *et alii* forthcoming.

At least thirty-two individuals were interred: twenty adults (MNI determined from the talus) including four males, four females, and twelve juveniles, of which three were perinatal, four aged 1–4 years, two aged 5–9, and three aged 15–19. Among the adults, at least three were aged 20–30 years, while one female and one male were over 50 years old.

Using these results, an analysis of the group was made. The mortality curves established for the juveniles were then compared to mortality profiles drawn up by S. Ledermann in 1969 for pre-vaccination mortality rates.¹⁰ Graph analysis shows that quotients for each age group are generally compatible with ordinary mortality and follow the mortality curve of pre-vaccinated populations, missing only two children under 1 and one child aged 10–14 (**Table 2**). Selection does not seem to have been a factor in this tomb.

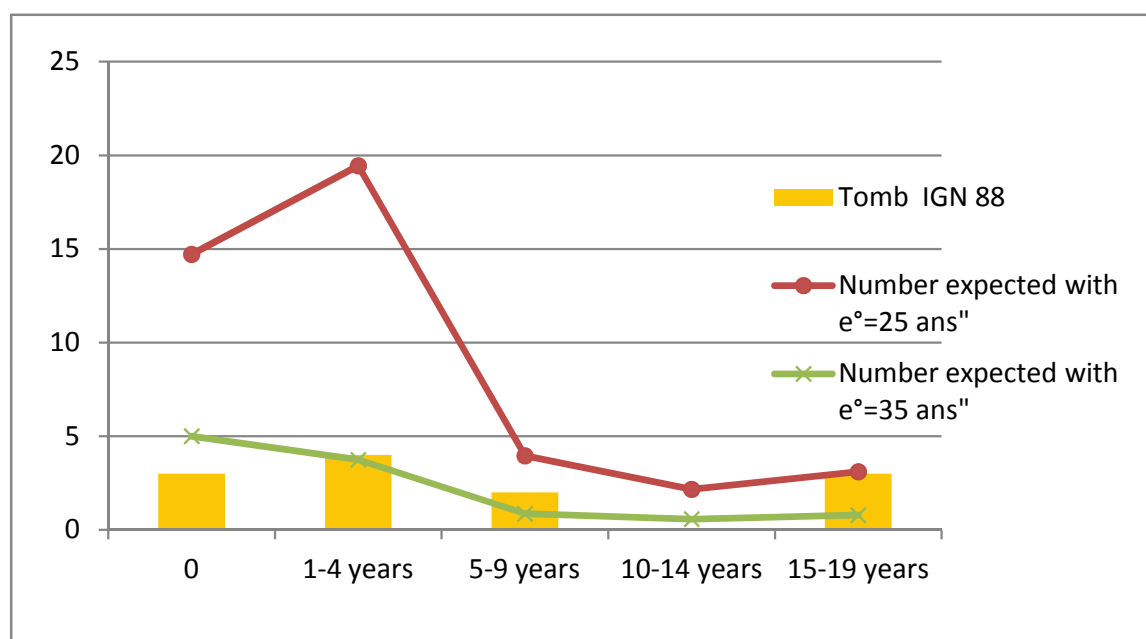


Table 2. Comparison of numbers of deceased in tomb IGN 88 with expected numbers ($e^\circ = 25$ years and $e^\circ = 35$ years)

At least four individuals exhibited signs of osteoarthritis in the knee (**fig. 26**), two in the shoulder, two in the metatarsals (**fig. 27**), and five in the spine (**fig. 28**). The lower spine of one individual was fused (**fig. 29**). It was not possible to determine whether the cases of osteoarthritis are linked to age or to a particular activity. Traumas include a distal fracture of the ulna as well as a malformation of the mandibular condyle (**fig. 30**). The individual evidently suffered from some kind of facial deformity.¹¹

Of adult teeth, 5.61% (5/89, uncorrected) exhibited caries, corresponding to the percentage found in the Nabataean population,¹² and 14.3% (12/84) exhibited enamel hypoplasia, also corresponding to the average seen in the Nabataean population.¹³

With regard to isolated characteristics, three in thirteen individuals exhibited an arcuate foramen and three in nine a sacralisation of the fifth lumbar vertebra (**fig. 31**). As these two characteristics are genetic in origin,

10. Notably, before vaccination against smallpox.

11. There was a difference in height between the two condyle processes: the right measured 51.45 mm, the left 45.96 mm.

12. DELHOPITAL 2010: 285.

13. *Ibidem*: 283.

it is quite possible that, as for IGN 117, the individuals interred in this tomb were related. The bones were not articulated and it is therefore not possible to determine whether these isolated characteristics (arcuate foramen and sacralisation of the fifth lumbar vertebra) belong to three individuals or more.

The height of the individuals varies between 1.44 m (± 4.13 cm) and 1.82 m (± 5 cm), and the average height between 1.58 and 1.64 m (see Appendix 1).

TOMB IGN 97

Excavation of this tomb was motivated by recent robbing, which uncovered bones on the surface as well as fragments of wood, leather, and textile (figs 3–4). IGN 97 has a crown of half-crowsteps and is c. 9 m high and 6.5 m wide (fig. 32). It bears an epigraphic frame but no inscription has been carved on it. The burial chamber measures 5 x 4.5 m. There are benches along the lateral walls and two graves were dug into the right-hand bench. There is a small recess in the left-hand wall (fig. 33).

The graves in the bench were emptied first and presented a few bones as well as pieces of wood, leather, and textile. The fill of the central part of the chamber was then removed. Measuring an average of 30 cm thick, it consisted of a first layer of sand mixed with a large number of stones, waste matter, bones, sherds, wood, leather, and textile. Below this was a very thin layer of brown sediment containing a few bones and some sherds.

Part of a skeleton was found *in situ* inside, near the entrance to the chamber (figs 34–35). Only a few elements remained: the skull minus the mandible, seven vertebrae, six ribs, the scapula, and the left clavicle. This is a primary burial. The individual was lying supine, oriented north-east/south-west, with the head to the north-east. Fragments of textile (reduced to powder) were noted during excavation. Two plates (50432_P02 and P03) were found, probably broken when the grave was robbed (figs 36–37).¹⁴

The archaeological material found in IGN 97 differs from IGN 117. There was less leather and textile but IGN 97 contained larger quantities of wood and basketwork. The wood found in IGN 97 had been worked and comes from coffins; the largest fragments compare with the width and almost the total length of a coffin: one, 50432_W01, measures 67 x 14 x 6 cm, the other, 50432_W02, 110 x 15 x 6 cm.

Fragments of shoe leather were also found, including a sandal consisting of a leather sole into which laces had been threaded (50432_L04, fig. 38) and a single leather sole (50432_L03, fig. 39).

A report on the anthropological study will be completed in 2015.

TOMB IGN 116.1

During excavation of tomb IGN 117, Isabelle Sachet and the author had proposed the hypothesis that another tomb was possibly located between IGN 116 and IGN 117. They had noted that Jabal al-Ahmar was densely occupied, except for a space between these two tombs (fig. 40). Moreover, marks left by cutting tools were observed on the top of the sand dune in front of the cliff, which resembles the crown of a tomb (fig. 41). In order to verify this hypothesis, part of the sand accumulated against the carved face was removed. A 20 cm layer of sand was quickly cleared, following which the entrance of a tomb with an apparently undecorated facade was uncovered. It was partially cleared to a height of 30 cm in order to gain access to the burial chamber, which measures 3 x 2.5 m. Inside the tomb, the height was between 1.20 and 1.50 m at the back of the chamber (the area least filled with sand) (figs 42–45) with an estimated 50 cm of fill remaining. The tomb was probably naturally filled with sand. The presence of a wasp's nest on the ceiling indicated that the chamber had at some time been left open. The width of the doorway is c. 1 m (fig. 46).

14. According to ceramologists (interpretation by C. Durand) they are Nabataean fine painted ware decorated with two lines, and date from the first half (?) of the first century AD.

CONCLUSION

The 2014 season confirmed several points established during previous years: the inhumations are not selective, they are primary burials of individuals who probably belonged to the same family. Both coffins and shrouds were used for the burials. New data has also been obtained: the small graves were probably used to inter juveniles; seed necklaces were sometimes placed next to the body and shrouds occasionally decorated with shells; the wood for the coffins may have been worked.

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Appendix 1: metrical data

<i>Humerus</i>					
<i>Lateralisation</i>	<i>Size</i>	<i>Robustness index</i>	<i>Robustness index</i>	<i>Diaphyseal index</i>	<i>Diaphyseal index</i>
R	145,725	17,74	Gracile	77,76	Eurybrachy
R	149,675	19,27	Normal	74,06	Platybrachy
R	157,575	17,63	Gracile	70,34	Platybrachy
R	161,525	20,33	Normal	87,33	Eurybrachy
R	163,5	20,32	Normal	86,38	Eurybrachy
R	172,585	21,02	Robuste	85,63	Eurybrachy
R				82,51	Eurybrachy
R				85,22	Eurybrachy
L	145,725	18,49	Gracile	71,08	Platybrachy
L	147,7	17,41	Gracile	83,02	Eurybrachy
L	156,39	17,12	Gracile	82,89	Eurybrachy
L	160,34	19,87	Normal	91,1	Eurybrachy
L	167,45	16,56	Gracile	88,81	Eurybrachy
L	171,4	20	Normal	65,46	Platybrachy
L				86,27	Eurybrachy
L				83,76	Eurybrachy

<i>Ulna</i>		
<i>Lateralisation</i>	<i>Size</i>	<i>Robustness index</i>
R	154,32	15,12
R	157,43	13,64
R	167,27	13,04
L	156,91	15,12
L	156,91	15,24
L	162,09	13,95
L	164,68	12,44
L	164,68	16,36
L	172,45	15,83
L	180,22	16,4

<i>Radius</i>				
<i>Lateralisation</i>	<i>Size</i>	<i>Robustness index</i>	<i>Robustness index</i>	<i>Diaphyseal index</i>
R	151,15	14,56	Gracile	71,94
R	153,27	14,76	Gracile	66,28
R	154,33	16,51	Normal	64,08
R	158,57	17,27	Normal	70,94
R	158,57	14,55	Gracile	77,57
R	161,22	16,44	Normal	74,96
R	165,99	14,1	Gracile	64,45
R	166,52	16,17	Normal	70,67
R	182,95	16,92	Normal	68,63
R				83,01
R				64,31
R				72,96
L	153,27	17,14	Normal	65,14
L	156,98	14,75	Gracile	80,39
L	159,63	15,32	Gracile	68,53
L	159,63	17,57	Normal	61,38
L	161,22	15,56	Gracile	76,7
L	164,93	15,09	Gracile	80,03
L	178,71	18,6	Normal	71,54
L	182,42	17,74	Normal	70,55
L				67,21

<i>Clavicle</i>		
<i>Lateralisation</i>	<i>Robustness index</i>	<i>Robustness index</i>
R	19,09	Gracile
R	20,56	Gracile
R	23,1	Gracile
R	24,4	Normal
R	24,47	Normal
R	24,84	Normal
R	24,95	Normal
R	25,18	Normal
R	28,38	Robust
L	20,83	Gracile
L	21,36	Gracile
L	22,58	Gracile
L	23,52	Normal
L	23,94	Normal
L	24,84	Normal
L	25,18	Normal
L	26,03	Robust
L	26,45	Robust

Femur							
<i>Lateralisation</i>	<i>Size</i>	<i>Robustness index 1</i>	<i>Robustness index 2</i>	<i>Pilastric index</i>	<i>Pilastric index</i>	<i>Platymeric index</i>	<i>Platymeric index</i>
R	144,65	12,03	18,38	94,87	Void pilaster	74,12	HyperPlatymery
R	150,35	11,55	17,44	103,53	Low pilaster	98,6	Eurymery
R	150,35	12,34	18,72	89,88	Void pilaster	126,05	Stenomery
R	153,2	11,8	18	101,84	Low pilaster	92,69	Eurymery
R	163,18	12,58	19,08	107,85	Low pilaster	83,12	Platymery
R						75,71	Platymery
R				95,08	Void pilaster	85,74	Eurymery
R				116,79	Low pilaster	84,38	Platymery
L	146,08	11,79	18,13	89,35	Void pilaster	73,96	HyperPlatymery
L	153,2	11,83	18	105,8	Low pilaster	87,76	Eurymery
L	153,2	11,03	17,25	104,42	Low pilaster	75,33	Platymery
L	156,05	12,08	18,78	92,74	Void pilaster	79,5	Platymery
L				85,97	Void pilaster	72,35	HyperPlatymery
L				102,51	Low pilaster		
L				127,05	Strong pilaster	87,57	Eurymery

Patella	
<i>Lateralisation</i>	<i>Patellar index</i>
L	88,93
L	94,05
L	95,87
L	96,06
L	100,52
L	101,1
L	102,28
R	83,11
R	84,88
R	89,29
R	90,29
R	93,91
R	97,27
R	97,55
R	97,96
R	101,32
R	103,41
R	103,52
R	103,72

<i>Tibia</i>				
<i>Lateralisation</i>	<i>Size</i>	<i>Robustness index</i>	<i>Cnemic index</i>	<i>Cnemic index</i>
R	157,852	19,09	75,53	Eurycnemy
R	159,362	20,3	94,11	Eurycnemy
R	168,422	20,55	74,33	Eurycnemy
R	171,442	20	82,07	Eurycnemy
R			68,71	Mesocnemy
R			74,89	Eurycnemy
L	150,302	19,02	77,36	Eurycnemy
L	156,342	19,69	65,73	Mesocnemy
L	156,342	20,92	80,68	Eurycnemy
L	156,342	19,08	71,26	Eurycnemy
L	160,872	20	71,76	Eurycnemy
L	163,892	22,29	66,13	Mesocnemy
L			67,6	Mesocnemy

<i>Fibula</i>	
<i>Lateralisation</i>	<i>Size</i>
R	156,4
R	157,04
R	161,83
R	172,99
L	153,85
L	156,4
L	166,93

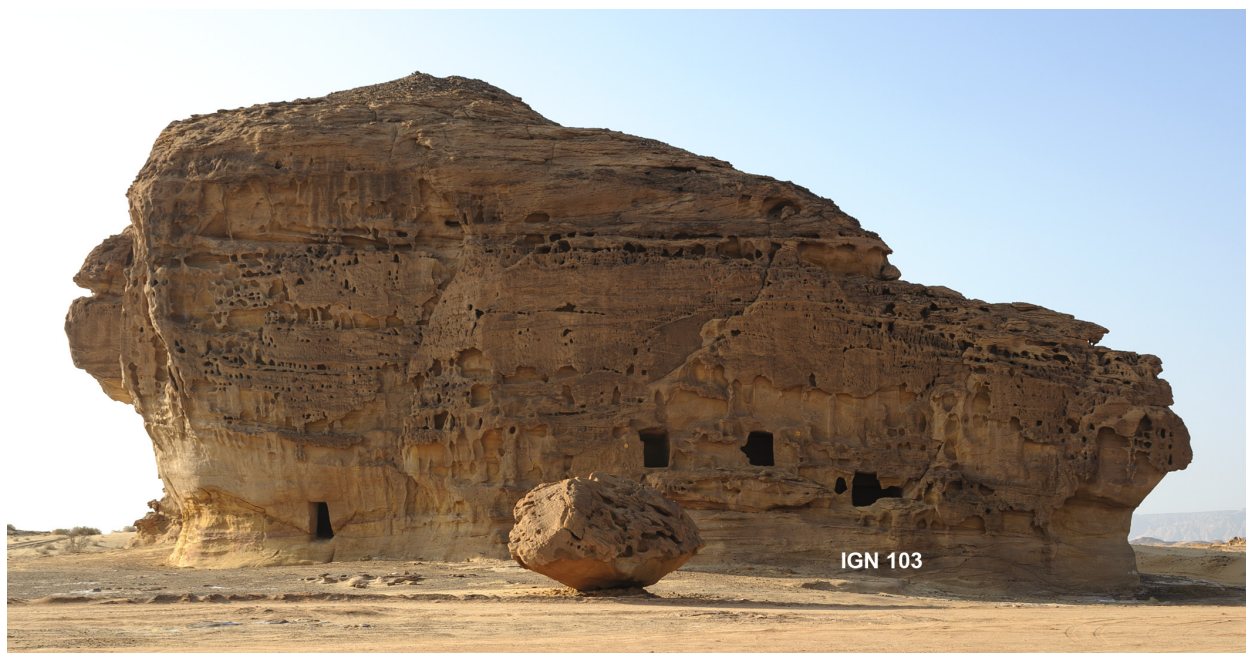


Fig. 1. Tomb IGN 103 viewed in its context (photograph Y. Gayet).



Fig. 2. The floor of tomb IGN 103.



Figs 3 & 4. Robbing of tomb IGN 97.



Fig. 5. The interior of tomb IGN 103, looking towards the doorway.

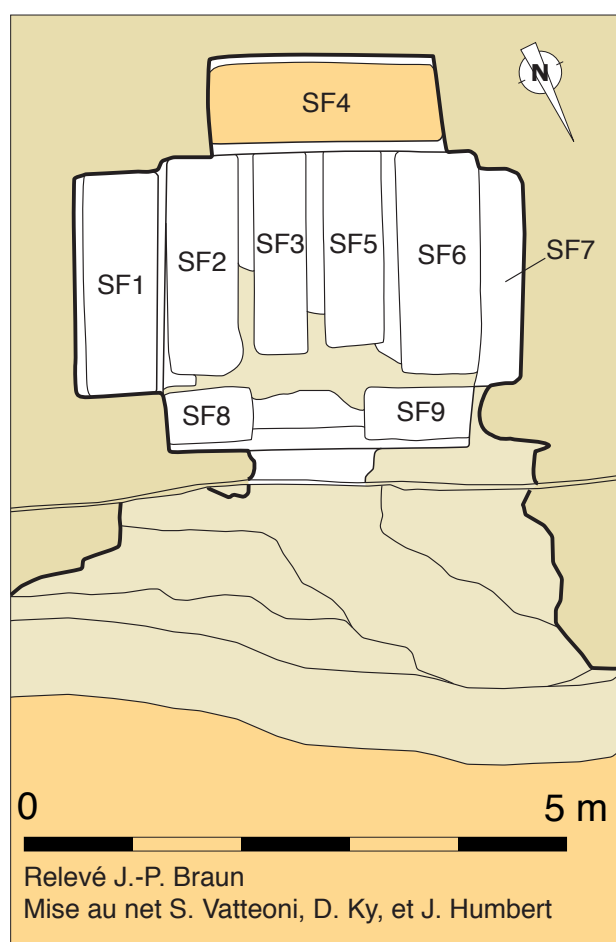


Fig. 6. Plan of tomb IGN 103.



Fig. 7. A fragment of wood (50411_W02) found in grave SF1.



Fig. 8. A fragment of thin roping (50411_T01) found in grave SF1.

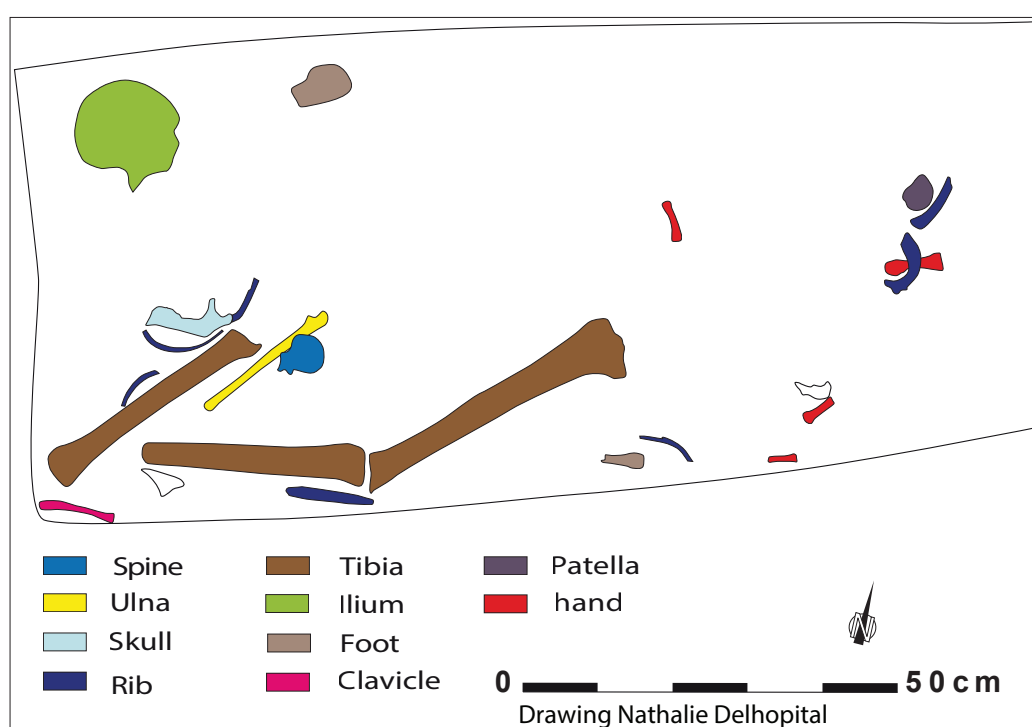
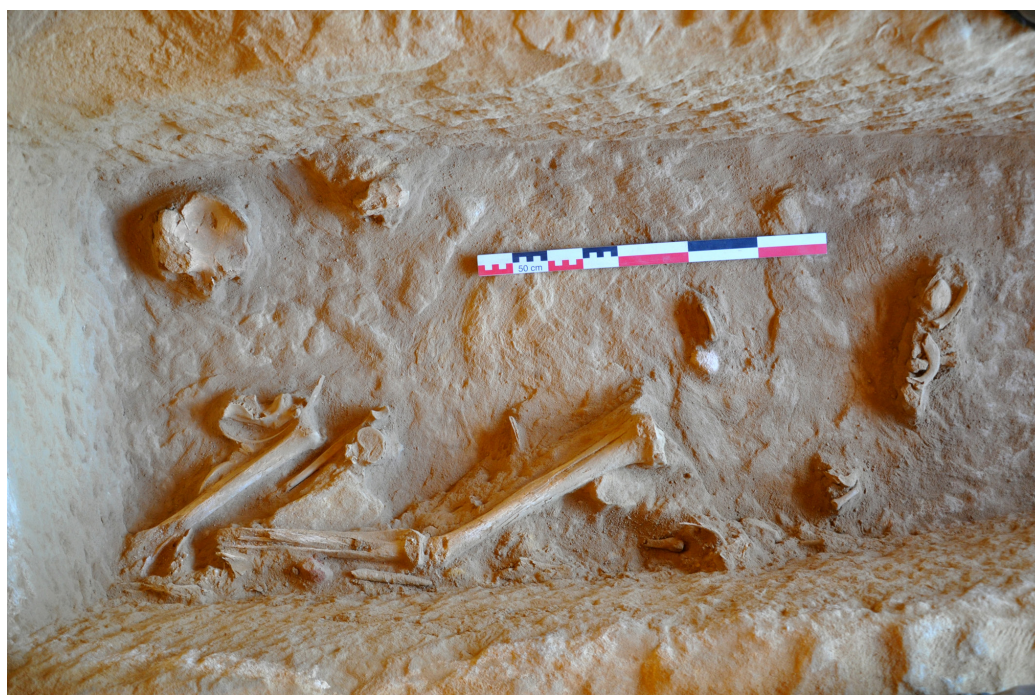


Fig. 9. Bones on the floor of grave SF5.



Fig. 10. Grave SF6 containing a fragment of ceiling.



Fig. 11. Grave SF8 after excavation.



Fig. 12. Grave SF9 after excavation.

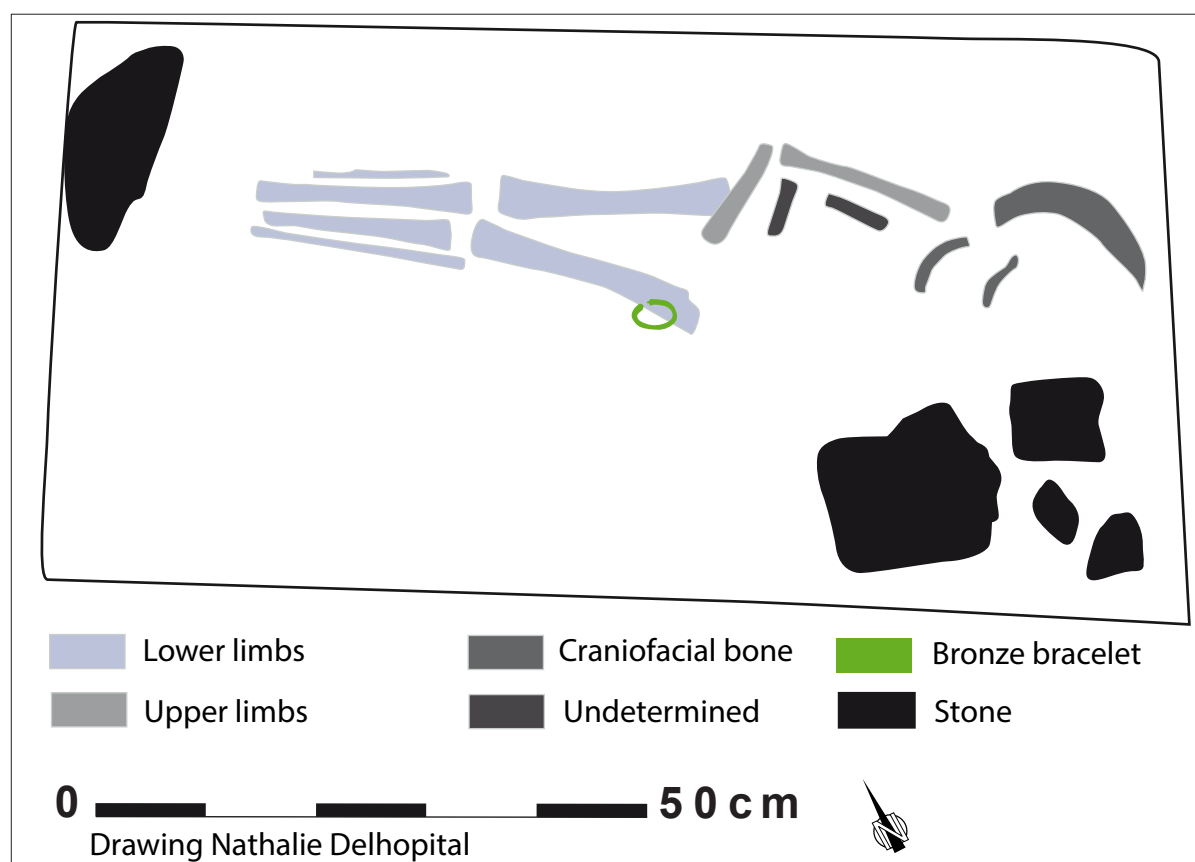


Fig. 13. The skeleton of a juvenile *in situ* in grave SF9.



Fig. 14. A bronze bracelet (50405_M01) found in grave SF9.



Fig. 15. Glass beads (50405_G01) found in grave SF9.



Fig. 16. Tomb IGN 88.



Fig. 17. A fragment of textile (50421_T02) found in tomb IGN 88.

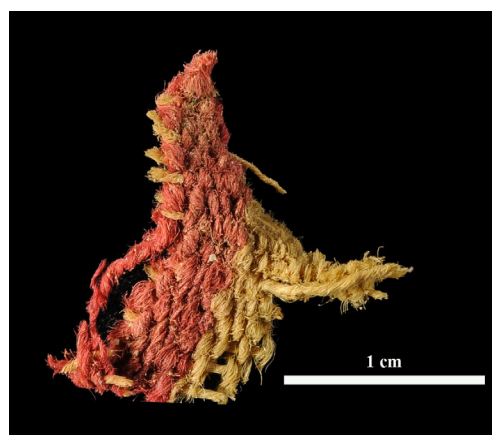


Fig. 18. A fragment of textile (50421_T03) found in tomb IGN 88.



Fig. 19. A fragment of leather (50420_L03) found in tomb IGN 88.



Fig. 20. A fragment of leather (50421_L07) found in tomb IGN 88.

Fig. 21. A fragment of seed necklace (?) found encased in resin, 50420_V01.



Fig. 22. A whole seed (photograph C. Bouchaud).



Fig. 23. A seed cut in half (photograph C. Bouchaud).

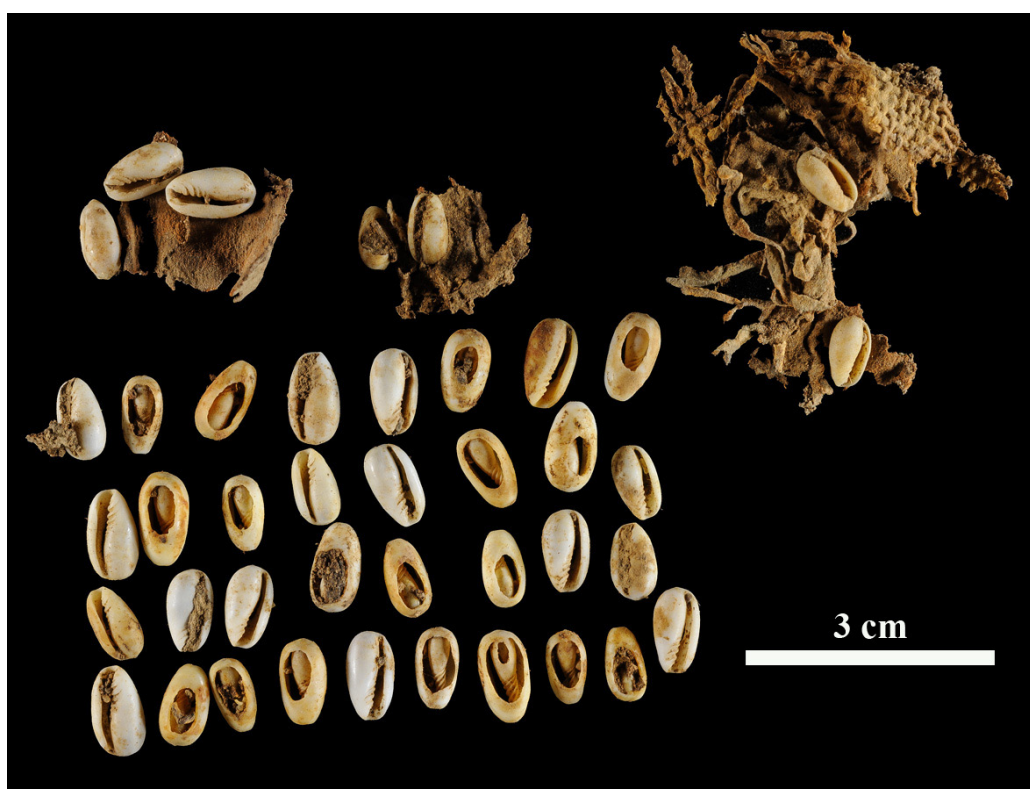


Fig. 24. Shells sewn onto pieces of leather, 50421_Sh01.



Fig. 25. Shells sewn onto pieces of leather, detail of 50421_Sh01.



Fig. 26. A knee joint exhibiting osteoarthritis (3rd stage with eburnation), 50432_B12.



Fig. 27. First metatarsals exhibiting osteoarthritis (3rd stage with eburnation), 50432_B11.

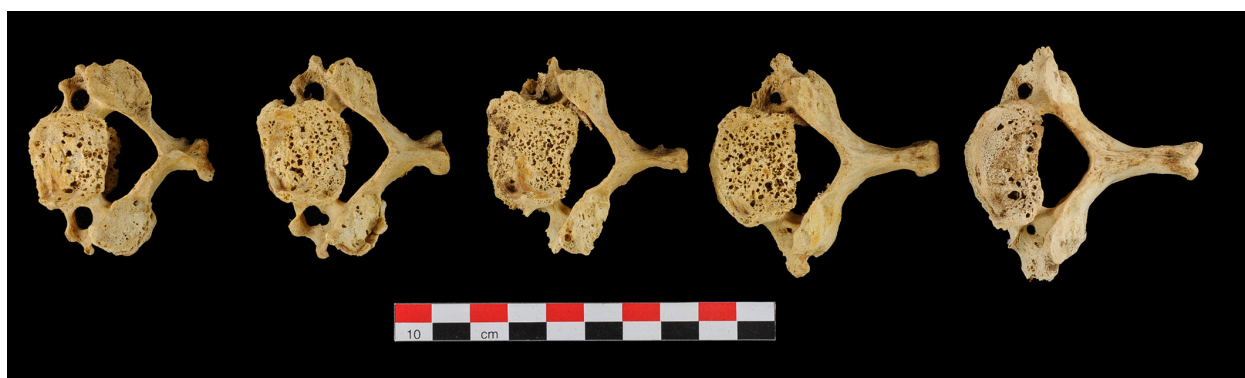


Fig. 28. Cervical vertebrae exhibiting osteoarthritis (3rd stage with eburnation), 50432_B10.

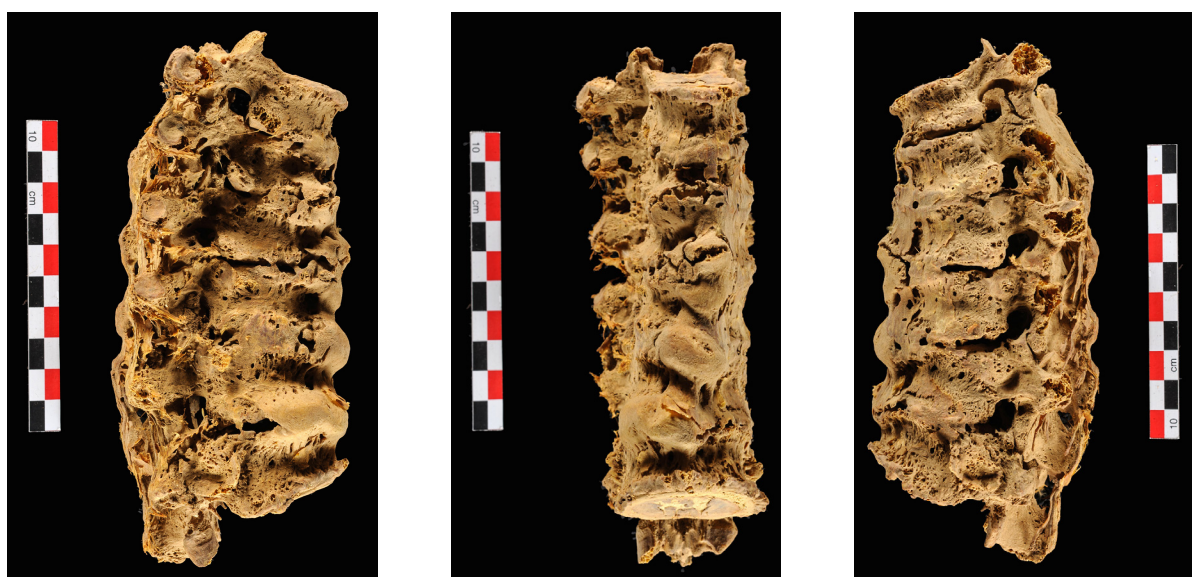


Fig. 29. Lumbar and thoracic vertebrae exhibiting pathology, 50432_B06.
a/ Right lateral view; b/ anterior lateral view; c/ left lateral view.



Fig. 30. Malformation of the mandibular condyle, 50432_B04.



Fig. 31. Sacralisation of the fifth lumbar vertebra, 50432_B04. a/ Anterior view; b/ posterior view.



Fig. 32. Tomb IGN 97.

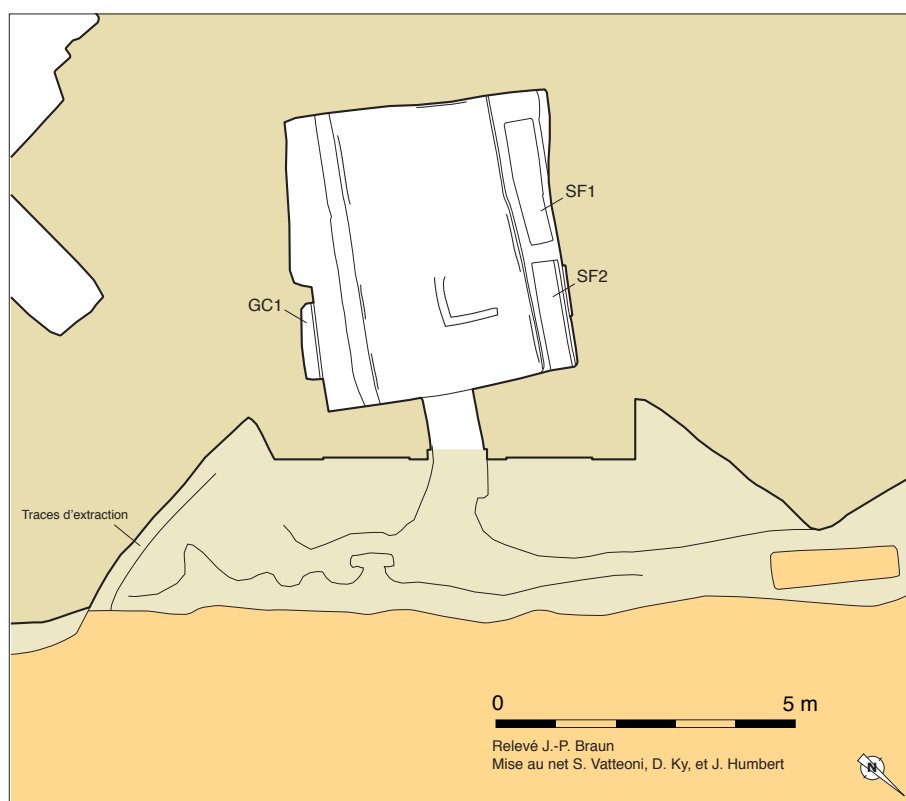


Fig. 33. Plan of tomb IGN 97.



Fig. 34. Skeleton *in situ* in tomb IGN 97.



Fig. 35. Skeleton *in situ* in tomb IGN 97, general view.



Fig. 36. Plate 50432_P03 found in tomb IGN 97.



Fig. 37. Plate 50432_P02 found in tomb IGN 97.



Fig. 38. Leather sandal 50432_L04 found in tomb IGN 97, seen from above and below.



Fig. 39. Leather sole 50432_L03 found in tomb IGN 97, seen from above and below.



Fig. 40. Eastern slope of Jabal al-Ahmar.



Fig. 41. Preparation for stone cutting (Jabal al-Ahmar).

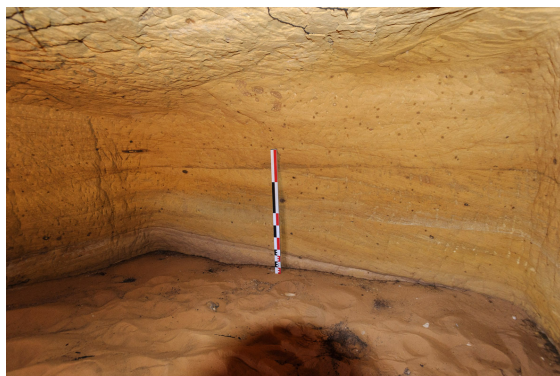


Fig. 42. Interior of the tomb, west wall, IGN 116.1.



Fig. 43. Interior of the tomb, east wall, IGN 116.1.



Fig. 44. Interior of the tomb, north wall, IGN 116.1.



Fig. 45. Interior of the tomb, south wall, IGN 116.1.



Fig. 46. Entrance of tomb IGN 116.1.

Excavation of a Cairn Complex in Jabal al-Khraymât, Massif 22, *loci* 42000

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The study of the cairns/*tumuli* at Madâ'in Sâlih started in 2008 with the excavation of a tower-tomb and continued in 2011 with the systematic survey of a selection of areas west and south-west of the site, which allowed to draw a new typology of the structures which belong to this category.¹ However, since the work undertaken during these first two seasons did not answer all the questions related to the date and function of these structures, we decided to devote the 2014 season to the excavation of a new cairn complex.

LOCATION AND AIMS OF THE EXCAVATION

The cairn which was chosen is F19 according to the numbering system used in 2011. It is located south of massif no. 22 in the Jabal al-Khraymât area, which is west of the site. *Loci* numbers 42000 were attributed to this new excavation area (figs 1–2).

The complex is composed of one main cairn, which was considered in 2011 as belonging to the type defined as 'circular tower-tomb', to which are associated two structures described as 'walls with rectangular internal faced compartments'². The latter are a new and very specific type of structure within the 'cairn' family at Madâ'in Sâlih. They have an uncommon layout and are systematically associated with tower-tombs. They are therefore closely related to funerary contexts but their exact function could not be determined during the 2011 survey.

Another reason why particular attention is given to these structures is the fact that the pottery which was collected around them during the survey belong to a specific and hitherto unknown pottery assemblage at Madâ'in Sâlih (see below for a more detailed description). This, along with the presence of beads made in particular shell species (see the report of J. Studer in this volume), suggest that we may have a yet unrecognised burial tradition which probably predates the Nabataean occupation at the site.

In this context, the aims of the excavation were the following: 1/ understand the construction technique and the plan of the so-called 'walls with internal faced compartments'; 2/ try to determine their function; 3/ reveal the possible connections between them and the main cairn; 4/ collect artefacts or organic material which would make it possible to answer an important pending question: what is the date of these structures?

Cairn complex F19 seemed to be the best candidate to answer all these questions. Indeed, despite the disorganised aspect of the elements which composed the complex, a few segments of preserved masonry were visible before excavation (figs 3–4). Moreover, the height of the earth and stone mound which delimited the walls suggested that the structure was relatively well preserved.

In order to proceed to a full and detailed study of the complex, a south-west/north-east longitudinal section was established and the excavations first focused on the southern part. The section was then drawn and documented before resuming the excavation of the northern half (figs 5–7).

1. ABU-AZIZEH 2010 and 2011.

2. For a typology of the structures, see the report on the 2011 season in ABU-AZIZEH 2011.

THE TOWER-TOMB (LOCUS 42002)

North-east of the two walls with rectangular internal faced compartments, there is a large cairn, the diameter of which is *c.* 7.50 m and the height 1.20 m (fig. 8). The walls are aligned with this stone mound, which suggests that the latter may have been the main – or initial – funerary monument of the complex. It is clear, as indicated by the hollow visible on top of the cairn and by the extensive disturbance of its south-eastern half, that the tomb under the cairn has been looted. Numerous human bone fragments were collected from the surface layer (*locus* 42009). Considering the large dimensions of the stone mound, we decided to excavate first the south-western half of the cairn and established a section perpendicularly to the longitudinal axis of the complex. Little information on the burial and the tomb layout was expected but the aim of the excavation was to understand the construction techniques of the cairn.

During the excavation of the destruction layer of the cairn (*locus* 42010), additional fragments of human bones were collected south-east of the stone mound. Their preliminary analysis showed that they belonged to at least two distinct individuals. This suggests that the cairn was either used for multiple burials, or that it was reused for successive single burials, between which the tomb was looted. The second hypothesis seems more likely since it was evidenced by the excavations undertaken in 2008 in cairn 40000.³

The north-western quarter of the cairn was the best preserved area. There, the excavation uncovered the masonry of a characteristic circular tower-like construction, three stone courses of which were preserved up to a maximum of 40 cm in height (*locus* 42011, fig. 9). The cairn does not seem to have an outer ring of white stones – unless it was completely eroded, which is unlikely. Therefore, it belongs to the ‘simple circular tower-tomb’ category. Since walls with rectangular internal faced compartments had previously been found associated with circular tower-tombs surrounded by an outer ring of white stones, we know that the walls could be associated with both types of tower-tombs.

The southern quarter of the cairn was poorly preserved, and no clear architectural remains were identified in this sector. This is probably due to lootings but also to a general collapse of the structure resulting from the breaking of the hard sandstone slab (part of the bedrock) on which the cairn was built.

THE WALLS WITH RECTANGULAR INTERNAL FACED COMPARTMENTS (LOCI 42003 AND 42007)

South-west of the cairn, *locus* 42002 was a long and shallow mound of stones which followed a linear arrangement (fig. 7A). During the 2011 survey, we had already identified in this apparently disorganised heap of stones the remains of some masonry. It became clear that what we have here is a pair of walls with rectangular internal faced compartments, similar to other examples identified nearby during the survey. The excavation allowed to proceed to a detailed study of the structure.

Wall 42003 and its destruction, *locus* 42005

The north-eastern end of wall 42003 is 4.5 m from the cairn (figs 5–6). It is a 9.70 m long and 1.75 m wide wall. All its faces, including the short sides, were carefully built with a nice facing of dry stones, some of which were very large (60 cm long). The wall is preserved up to a maximum of 40 cm in height and three to four courses of stones (figs 10–12).

Since an important quantity of stones fallen from the wall were found around the structure, the wall was probably originally significantly higher (*locus* 42005). Judging from the quantity of fallen stones, the wall may have been 30 to 40 cm higher than it is now, thus reaching a total height of 70 to 80 cm (figs 13–14). Interestingly, we observed that the fallen stones, which come from the upper parts of the wall, were exclusively white sandstone boulders. They come from the soft sandstone layers of the Jabal al-Khramât massifs and

3. ABU-AZIZEH 2010.

they clearly contrast with the hard reddish/purple sandstone used for the building of the still preserved lower courses of the wall. This suggests the use of two different kinds of stones, which was confirmed by the fact that wherever the wall is well preserved, white sandstone stones are used in the upper courses and are still visible despite the fact that they are much eroded because of their softness. There was possibly a structural reason to this: the use of hard sandstone boulders in the lower courses provided a better and more solid foundation for the wall while the white and soft sandstone used in the upper courses, which was easier to cut, reduced the workload of the builders. A purely aesthetic reason can also not be excluded, especially since a similar pattern was observed in the tower-tomb 40000, where exclusively white sandstone stones were used in the construction of the outer ring while hard reddish/purple sandstone stones were used in the inner ring (or inner tower). Thus, the association of the walls with rectangular internal compartments with tower-tombs, particularly with those which have an outer ring of white sandstone, and the use, in both kinds of structures, of a special construction technique mixing white and red/purple stones seem to indicate that they belong to the same architectural tradition.

Wall 42007 and its destruction, *locus* 42008

Wall 42007 is aligned with wall 42003 but there is a small gap of 0.85 m between the two (figs 6–7C). It is 10.50 m long and its width varies from 1.40 to 1.70 m. It is less regular and more sinuous than 42003, especially its southern facing (figs 5–6).

The wall is preserved up to 60 cm in height and six courses of stones (figs 10–12). As for wall 42003, many stones seem to have fallen from it and, based on their quantity, its approximate original height can be estimated to be *c.* 1 m (figs 15–16). Once again, the fallen stones are white sandstone boulders, which contrast with the lower reddish/purple lower courses of the wall.

At its eastern end, the wall was covered by a cairn or a heap of stones *c.* 5 m in diameter and 0.80 m high (*locus* 42004, figs 5 and 7B). This cairn was divided into four quarters and the excavation of the northern and southern quarters allowed to understand the building sequence both in plan and in section. The destruction of the cairn (*locus* 42006) was made of small to medium size stones and extended over the destruction layer of wall 42007 (fig. 17). Moreover, the masonry of the latter continued below the destruction of the cairn. All this indicates that the cairn was added on top of the wall in a phase of reuse of the complex. Huge stone boulders, which were put against the wall's northern and southern faces, below the cairn, may be interpreted as some kind of foundation platform for the building of the latter.

Finds in the destruction layers of the walls: remains of a specific material culture

Numerous fragments of shell beads along with pottery sherds were collected during the excavation of the destruction layers of the walls (*loci* 42005 and 42008). The beads were mostly made of large conus shells (see the report of J. Studer in this volume), which were pierced and showed sometimes traces of polishing or of smoothing due to the passing of the string through the hole (figs 18–19). We can deduce from these traces of wear that these items were part of everyday life and were not artefacts produced specifically for a funerary purpose.

Apart from the shell beads, numerous pottery sherds were uncovered during the excavation of the destruction layers of the walls. They are all characterised by a pink to dark red ware with a fairly coarse temper, sometimes with a decoration of a double line of incised dots. This kind of pottery had already been recognised during the survey as being a specific production, which had no parallels in the Residential Area of Hegra. Since we found it on the surface of four structures which had walls with rectangular, internal, faced compartments, we assumed that it was connected to this particular type of cairn.⁴ This connection is now confirmed by the 2014 excavations, which yielded this pottery in a stratified context. In addition

4. See ABU-AZIZEH 2011: 232–233: similar pottery was found in the cairn complexes AZ10_b, AZ14, AZ48 and F19. This type of pottery was found only once in a cairn complex without a wall with compartments (F07).

to the sherds found mixed in the bulk of the destruction layers (*locus* 42005, **fig. 20**), a concentration of pottery sherds was found at the bottom level of the destruction layer of wall 42007 (**fig. 21**). The sherds obviously belong to the same pot, and some of them bear the typical decoration pattern with incised dots. As they were found on the surface of the bedrock, at the bottom of the wall, and sealed by the 30 to 40 cm thick destruction layer, we are sure that this specific pottery production is linked to the walls with rectangular compartments. It also suggests that the looting of the structure from which the pottery originates occurred soon after the structure was built and before it started to collapse.

The rectangular internal compartments (*loci* 42012, 42014, 42016, 42018, 42020, and 42022) and their filling (*loci* 42013, 42015, 42017, 42019, 42021, 42023).

Both walls had three rectangular compartments built inside them. Each one of them was delimited by a stone facing (**figs 22–23**). The size of the compartments within each wall is roughly the same but it differs from one wall to the other (**figs 5–7**). As shown in Table 1 below, the average dimensions of the compartments of wall 42003 are *c.* 1.90 m in length and 0.60 m in width, while the compartments of wall 42007 are significantly smaller with an average of 1.40 m for the length and 0.50 cm for the width.

There is also a difference in the building technique: the compartments of wall 42003 have a rectangular and regular shape with a carefully built stone facing (**fig. 24**) while those of wall 42007 are more irregular and their stone facing is laid less carefully (**fig. 25**). It should also be noted that in wall 42003, the compartments are distributed evenly, with regular intervals, whereas in wall 42007, they are distributed more randomly, with gaps of varying length between them. This is particularly clear at the south-western end of wall 42007, where there is an unusually important 2.60 m long gap between the end of the compartment and the edge of the wall.

Compartment	Length (m)	Width (m)	Artefacts
<i>Locus</i> 42012	1.90	0.60	42013_B01; 42013_Sh01; 42013_Sh02
<i>Locus</i> 42014	1.85	0.60	42015_Sh01; human bones splinters (not collected)
<i>Locus</i> 42016	2	0.60	Human bones splinters (not collected)
<i>Locus</i> 42018	1.40	0.50	—
<i>Locus</i> 42020	1.40	0.55	—
<i>Locus</i> 42022	1.45	0.50	42023_B01; 42023_Sh01

Table 1. Dimensions and finds of the rectangular compartments of the walls in cairn complex 42000.

The filling of the six compartments was roughly the same and consisted in an upper layer of soft and loose aeolian sediment combined with silty deposits related to the stagnation of water. This 20 to 30 cm thick layer contained occasionally stones fallen from the internal facing of the compartments. Below it, the lower 10 cm of the filling consisted in a more compact layer of sediment, with small stones and pebbles, where most of the artefacts were uncovered. During the excavation, the sediment from the compartments was sieved through a 0.3 mm mesh sieve. Human bones fragments and splinters were found in the filling of several compartments, along with beads belonging to various species of shells, including typical conus shells (**figs 26–27**). The most interesting discovery was made in the compartment *locus* 42022, where the very badly preserved bones (they disintegrated into powder) of a forearm and of a hand were found *in situ*. These bones belong to the body of an adult individual and they are the only human remains which escaped the lootings of the cairn complex. Eighty-two small beads belonging to different sea shell species were also found in this *locus* (**fig. 28**). They obviously were part of a funerary ornament, most probably a bracelet.

DISCUSSION

The excavation of the cairn complex F19 clarified its layout (**fig. 29**) and gave important information on its function and on the relative chronology of its elements. It is now possible to say that we are dealing with a funerary tradition not previously known in the north-west of the Arabian peninsula.

Function of the walls with rectangular internal compartments

Before the 2014 excavation, it was not clear whether the walls with rectangular internal faced compartments were used as tombs or were structures with only a symbolic function. A parallel could be drawn with the structures referred to as ‘tail tombs’, which are well-known in the arid margins of the Near East and the Arabian peninsula and which are generally attributed to a Late prehistoric (Late Neolithic to Early Bronze age) timeframe.⁵ They differ from the structures we are dealing with here because the ‘tail’ is made of a succession of individual stone heaps installed a few meters away from each other whereas in our case it is a continuous wall which is aligned with the main cairn. The total length of the ‘tails’ can reach several hundred meters. Since neither human bones nor other kinds of artefacts were found inside the stone heaps, a symbolic function is usually attributed to the ‘tails’. They may have served to give the tombs of the associated cairn a better visibility in the landscape.

The excavations showed that the walls with rectangular compartments clearly had a funerary function. This can be inferred from the presence of human bone fragments and splinters as well as from the discovery of numerous sea shell beads which were used as body ornaments and funerary offerings. The latter were found in the filling of the compartments as well as in the lower levels of the destruction layer of the walls, thus indicating that lootings may have taken place early in Antiquity, before the structure started to collapse.

The overall organisation of the cairn complex, considered as a ‘funerary compound’ is, however, not completely understood yet, and this aspect will be addressed in the following paragraph.

Relative chronology and the formation process of the cairn complex

The most important question is whether the elements which form the cairn complex – the tower-tomb and the two walls – were built simultaneously or not. Since there is no direct stratigraphic link between them, it can be answered only by analysing them from an architectural perspective. We assume that tower-tomb 42002 is the initial and most important funerary element of the complex and that wall 42003 was built a few meters away from it during the same building phase. This is difficult to prove but we may give one argument in favour of this hypothesis: the F19 complex is built on a flat and long bedrock platform and this location was obviously chosen deliberately in order to have enough space to build the kind of structure the builders had in mind. This is probably the reason why the tower-tomb was built on the north-eastern edge of the outcrop: it left enough space south-west of it to build the associated walls. The orientation of wall 42003, the long axis of which is aligned with the tower-tomb is also a good argument in favour of a link – chronological and functional – between the two structures. Wall 42007 seems instead to have been added in a later building phase. This is suggested by the use of different building techniques. Of course, it has the same orientation as wall 42003 but it is less regular and the facing of the wall is of poorer quality. Its south-western face, particularly, is not straight, and therefore the width of the wall varies from 1.40 to 1.70 m. This is also visible in the internal rectangular compartments, which are not distributed evenly in the wall and the masonry of which was clearly less carefully laid than in wall 42003. Finally, the compartments themselves are significantly smaller than those of wall 42003.

These observations suggest that wall 42007 was built by a group of persons different from the one who built wall 42003. The time interval between the two is impossible to determine but it certainly did not exceed a few generations because the layout of the two walls is, in the end, relatively similar and point to the same

5. STEIMER-HERBET 2004: 44–45.

funerary tradition. It is possible that the persons involved in the building and in the use of the cairn complex were part of the same family who used it over several generations. The tower-tomb may have been used to bury an ancestor while the tombs in the walls, added at a more or less later date, would have been used to bury individuals belonging to the same lineage. The fact that the initial burial was in a tower-tomb and the others in walls may be explained either by the desire to give the ancestor a special treatment or by a shift in the burial tradition through time. Considering the recurring association of the walls with tower-tombs – which always seem to be the ‘starting point’ of the complex – the former hypothesis is more likely.

As for the number of compartments in the walls, all we can say is that both walls contain three and that the majority of the fourteen walls with internal compartments which were identified at the site also contain three compartments (in some cases there are only two, or four).⁶ This is probably not a coincidence.

The last phase of the cairn complex is represented by the building of a cairn (*locus* 42004) on top of the north-eastern end of wall 42007. This is a late adjunction to the cairn complex, undertaken after wall 42007 had already been destroyed by lootings and erosion. This later date is confirmed by the presence of a glass bead (42006_G01) in the filling of the structure.

A hitherto unknown funerary tradition in the north-west of the Arabian peninsula?

Apart from the parallel with the ‘tail tombs’ suggested above, which may in fact be irrelevant, the best parallel to our structures is to be found in monuments known as the ‘wall tombs’, which are attested in Sinai, in the Negev, and in Yemen.⁷ They show however a significant difference, which is that the walls contain only one tomb. None of them was ever excavated however, which makes it difficult to draw the parallel further.

An interesting comparison can also be made with the cairn field of Rujûm Sa‘sa‘ near Taymâ’. Among other structures, it contains tower-tombs, the excavation of which showed that there are both simple tower tombs and tower-tombs with an outer stone ring, as at Madâ’in Sâlih.⁸ What is particularly striking is the presence, at Rujûm Sa‘sa‘, of structures which are similar to the Madâ’in Sâlih walls with internal rectangular compartments.⁹ Structure numbered ‘Tell 2’ is 12.70 m long and 2.80 m wide and it is preserved up to 70 cm in height. It was delimited by a carefully arranged stone masonry and it contained five internal compartments. Although the internal stone facing of the compartments is much less carefully built (or poorly preserved due to lootings?), the similarity with the Madâ’in Sâlih structure is striking. The comparison can be extended to the material culture, which is very similar to that discovered in F19. The pottery shares the same characteristics (see C. Durand in this volume): same clay, same pottery shape and same decoration pattern made of incised dots (AL-HAJRI 2002: pl. 3.8A, pl. 3.14A and compare with **fig. 20** in this report, as well as ABU-AZIZEH 2011, fig. 33, and DURAND 2011: fig. 17). There are also shell beads (notably in dentalium, compare **fig. 28** in this report with AL-HAJRI 2002: pl. 315). The two sites seem therefore to share, at some stage of their history, the same funerary tradition. The area where this funerary tradition exists is not known but it extends at least between Taymâ’ and Madâ’in Sâlih.

The date of this funerary tradition is still totally unknown. The excavations at Rujûm Sa‘sa‘ were not conclusive regarding this issue. In both cases, the material culture does not have any parallels in the large neighbouring sites: Taymâ’ for Rujûm Sa‘sa‘ and the Residential Area of ancient Hegra for our cairns. The radiocarbon dating of the human bones which come from the burial in compartment 42022 is in process and should hopefully allow, at last, to determine the date of this funerary tradition and of the material culture associated with it.

6. Five have three compartments (AZ6_b, AZ10_b, AZ48_b, F19_b and F19_d), one has three compartments (F17_c) and one other has four compartments (AZ10_g). In the seven other examples, the masonry of the compartments could not be identified without excavation.

7. For a description of the ‘tombes murs’, see STEIMER-HERBET 2004: 85–86.

8. AL-HAJRI *et alii* 2002 ; 2005 ; AL-HAJRI 2006 (see Arabic sections, as well as the shorter English versions in each of these volumes). See also the book by AL-TAYMANI 2006 (in Arabic).

9. AL-HAJRI *et alii* 2002: 24 and 48–51 for a description of Tell 2, see also plate 3.10B.

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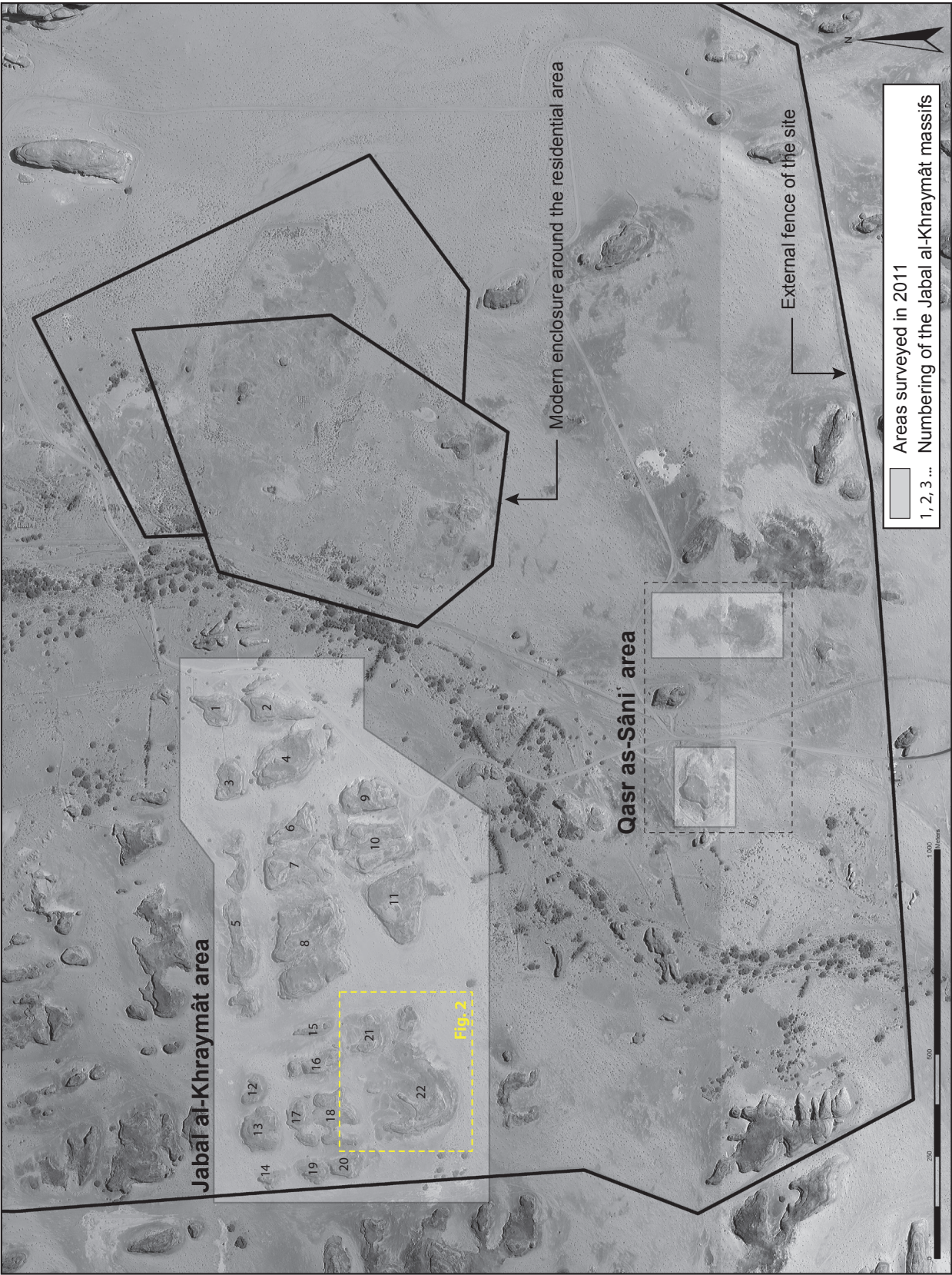


Fig. 1. General map showing the areas surveyed in 2011.

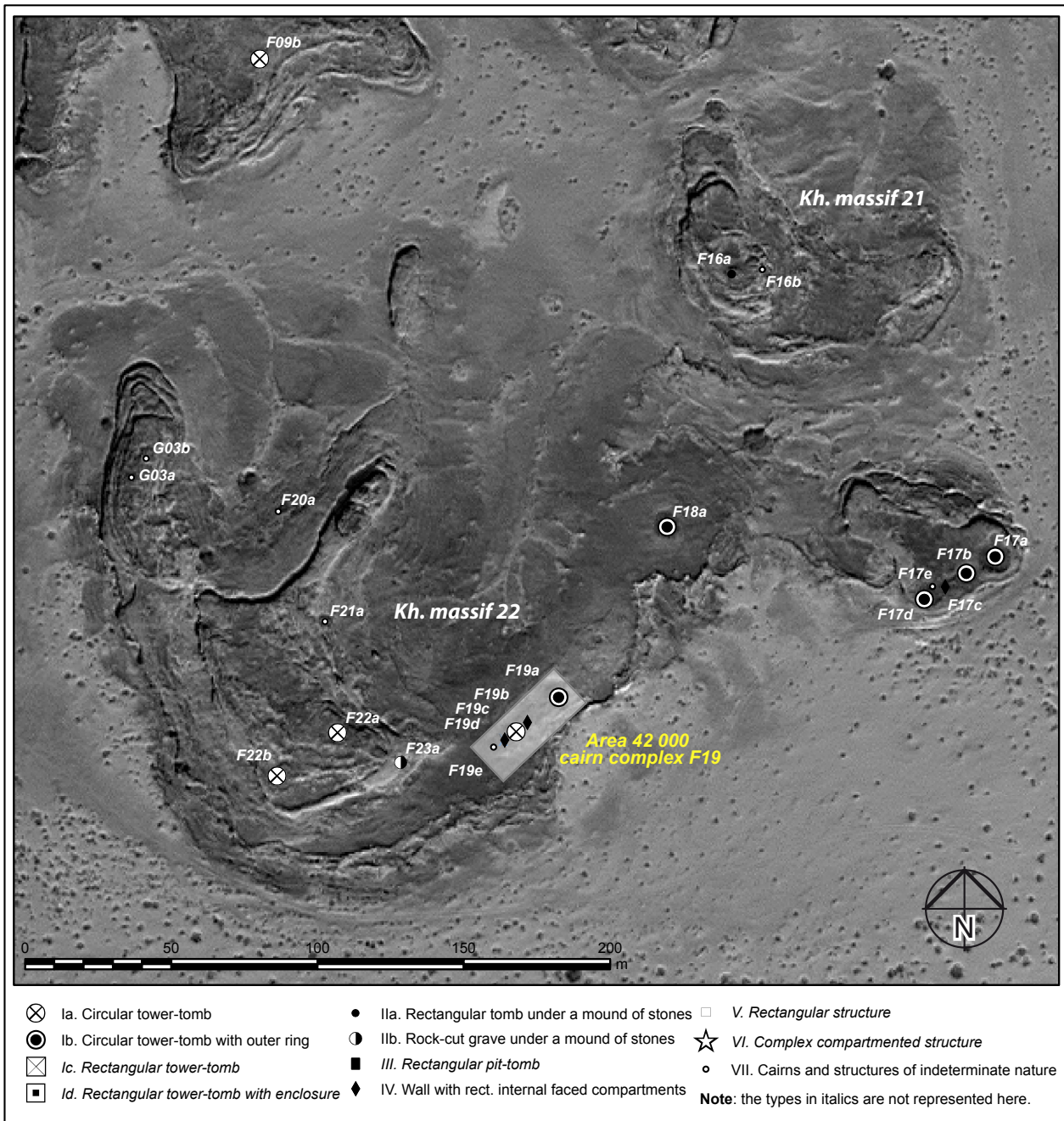


Fig. 2. Map showing the location of cairn complex F19 (*loci* 42000) within the Jabal al-Khraymât massif 22.



Fig. 3. General view of cairn complex 42000 before excavation, towards the north.



Fig. 4. General view of cairn complex F19 (*loci* 42000) before excavation, towards the south-west.

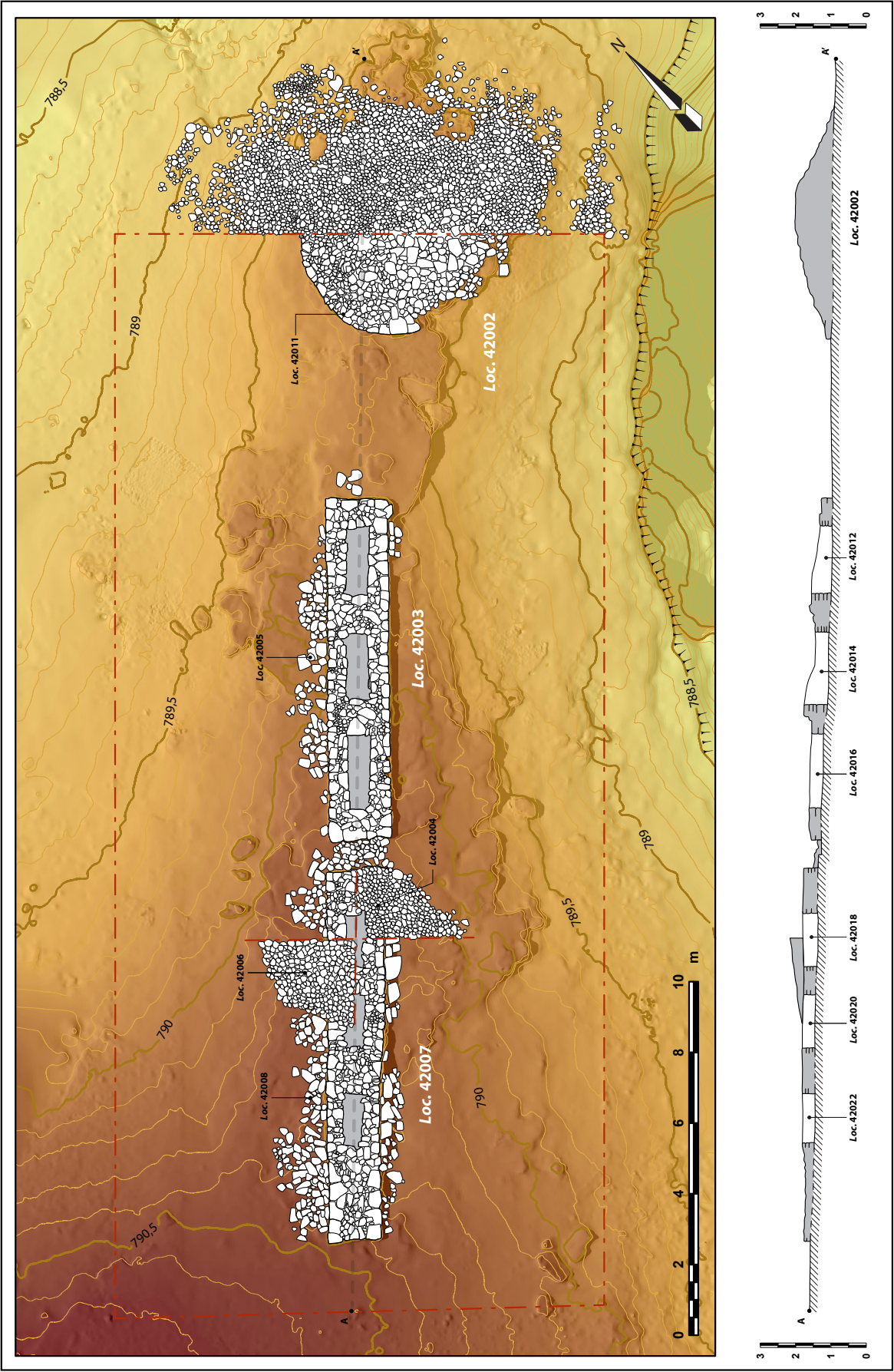


Fig. 5. Top plan of cairn complex F19 (loci 42000) in its topographical context during excavation.

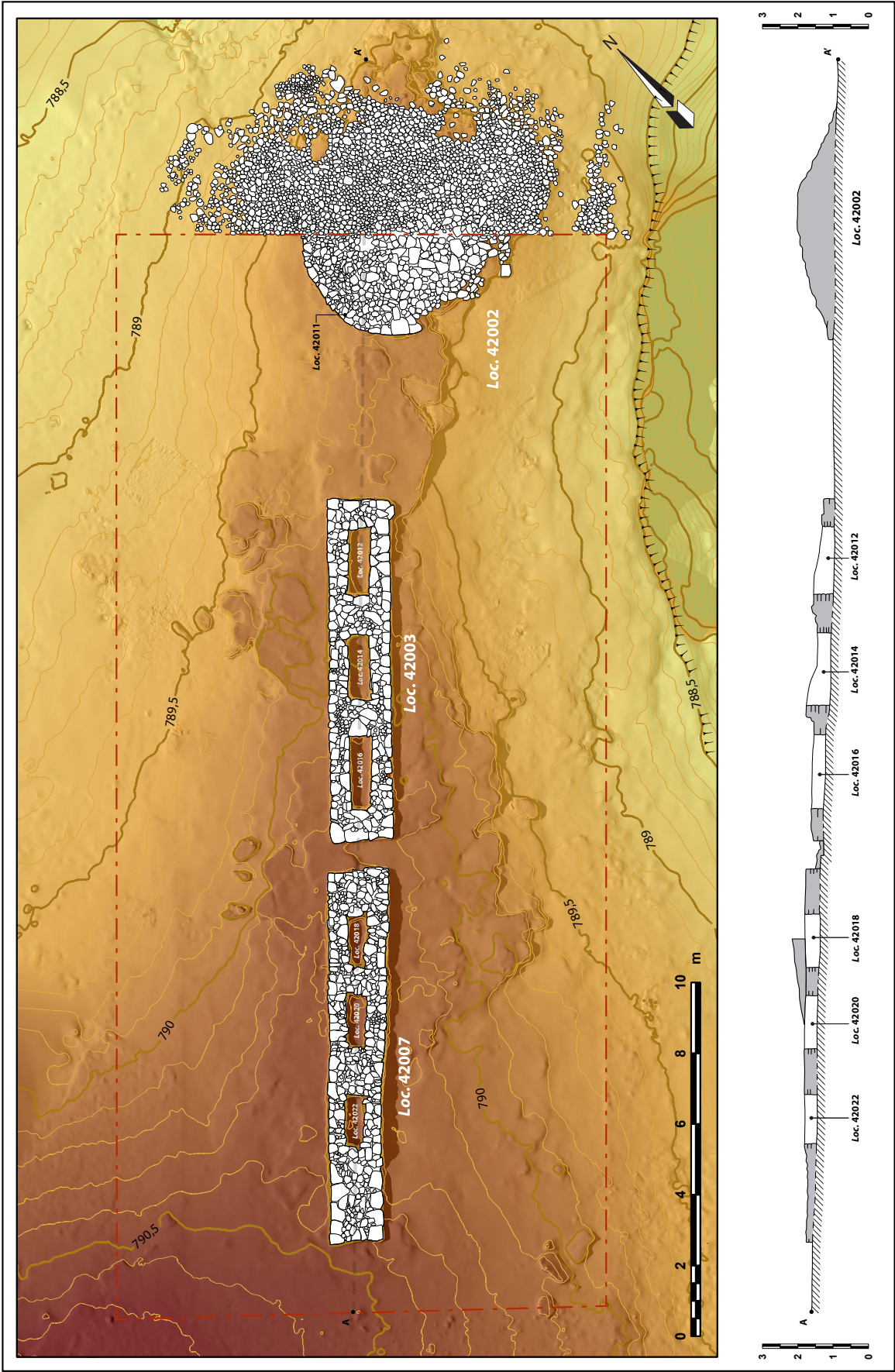


Fig. 6. Top plan of cairn complex 42000 in its topographical context at the end of the excavation season.

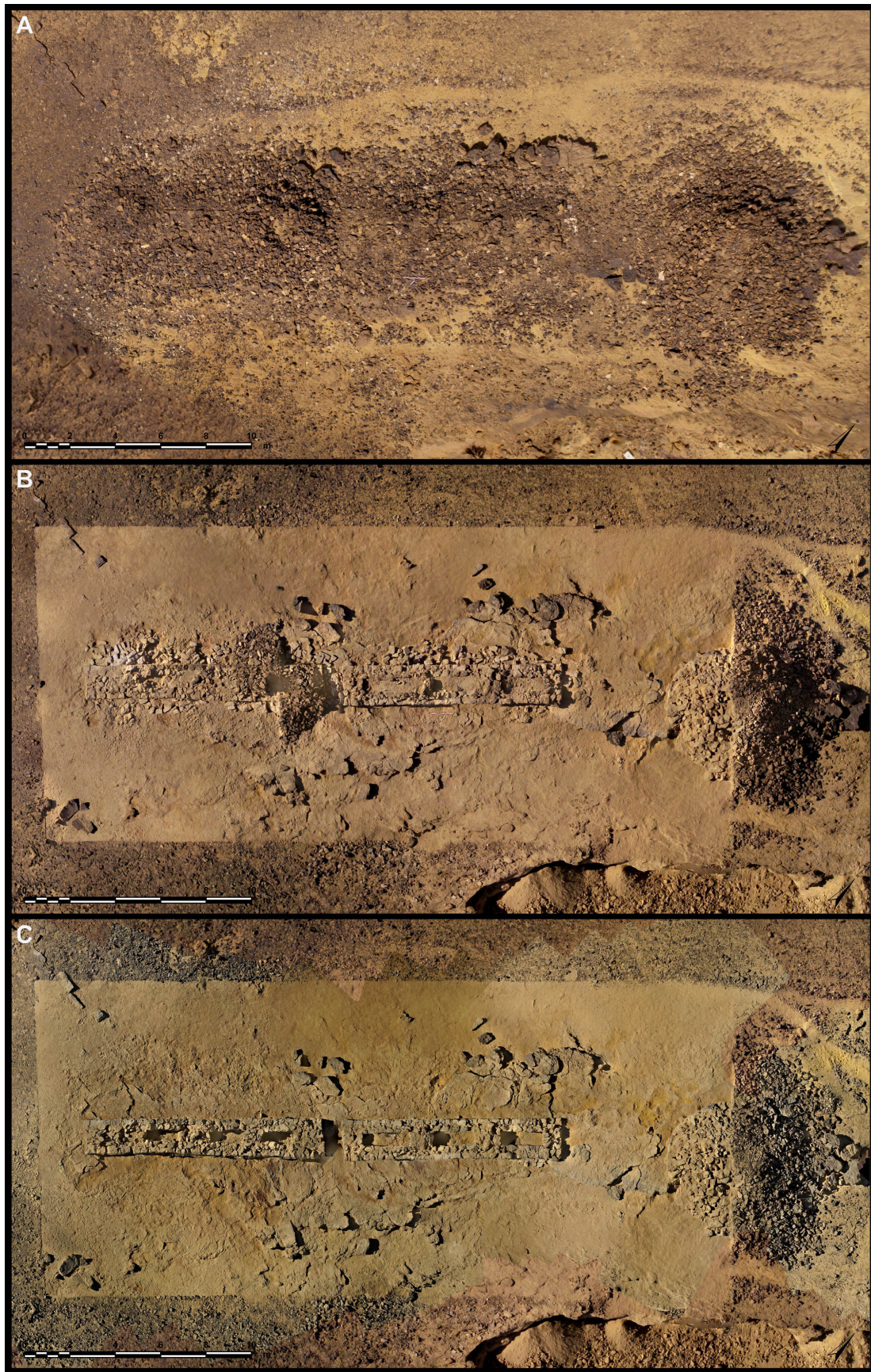


Fig. 7. Orthophotos of the cairn complex 42000 at different stages of the excavation.



Fig. 8. General view of the tower-tomb (*locus* 42002) towards the south-east.



Fig. 9. Detailed view of the masonry (*locus* 42011) of the tower-tomb.



Fig. 10. General view of walls 42003 and 42007 after the removal of the destruction layers around them, towards the west.



Fig. 11. General view of walls 42003 and 42007 after the removal of the destruction layers around them, towards the east.



Fig. 12. Detail of masonry of walls 42003 (left) and 42007 (right).



Fig. 13. Wall 42003 and its destruction, locus 42005, towards the east.



Fig. 14. Detail of the stones fallen from wall 42003 (destruction layer locus 42005).



Fig. 15. Wall 42007 and its destruction, *locus* 42008, towards the south-west.

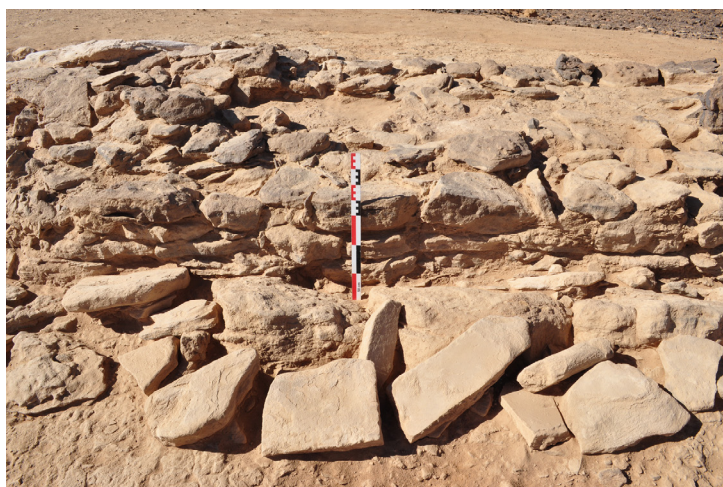


Fig. 16. Detail of the stones fallen from wall 42007 (destruction layer *locus* 42008).



Fig. 17. General view of the cairn (*locus* 42004) extending above wall 42007, towards the east.

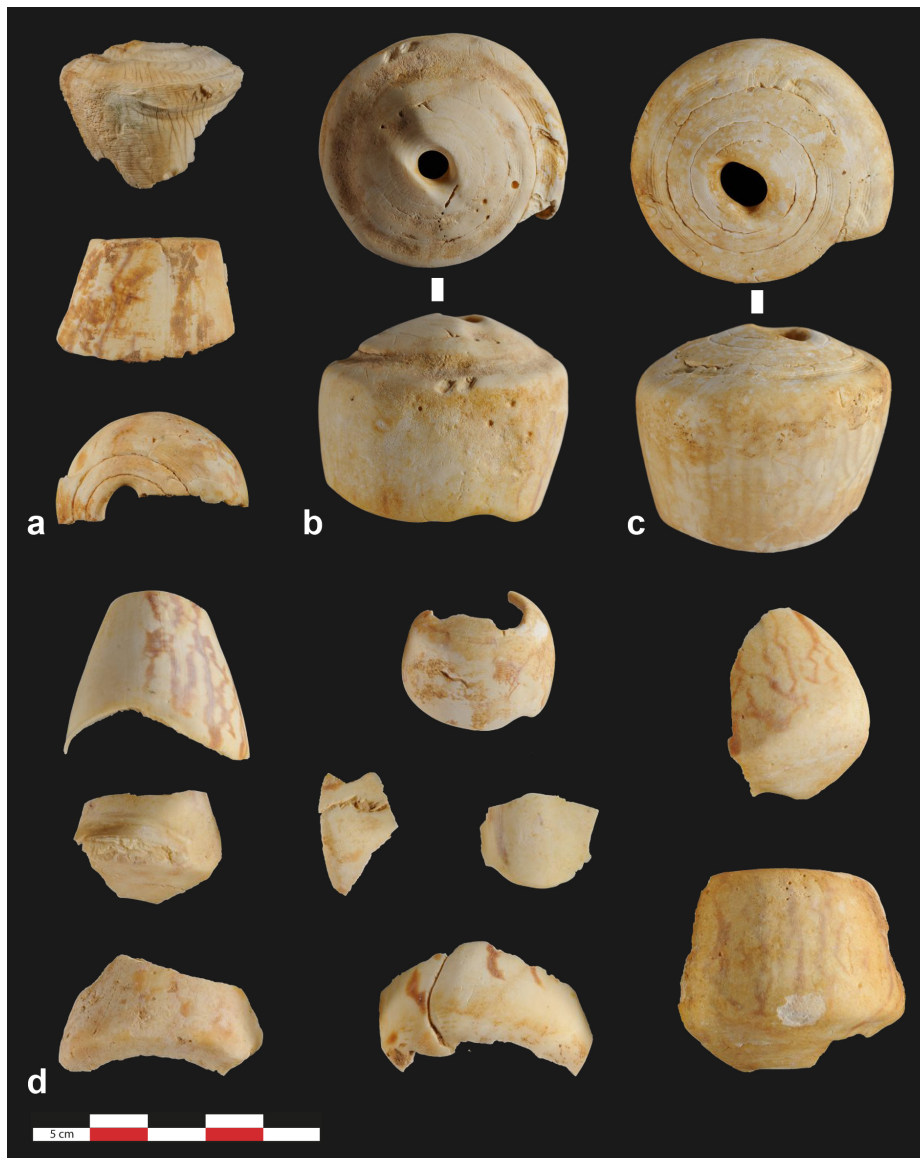


Fig. 18. Shell beads from the destruction layer *locus* 42005
(a. 42005_Sh01; b. 42005_Sh04, c. 42005_Sh05, d. 42005_Sh06).

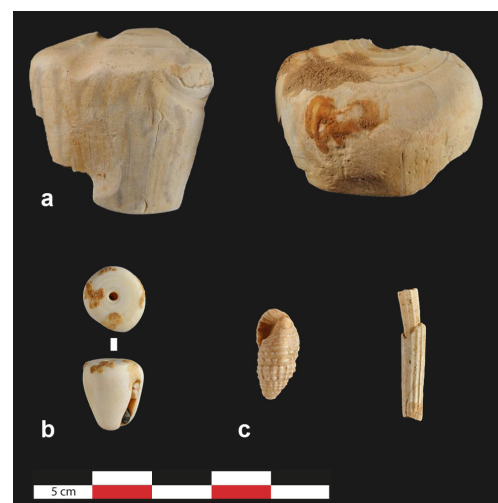


Fig. 19. Shell beads from the destruction layer *locus* 42008
(a. 42008_Sh01; b. 42008_Sh02; c. 42008_Sh03).

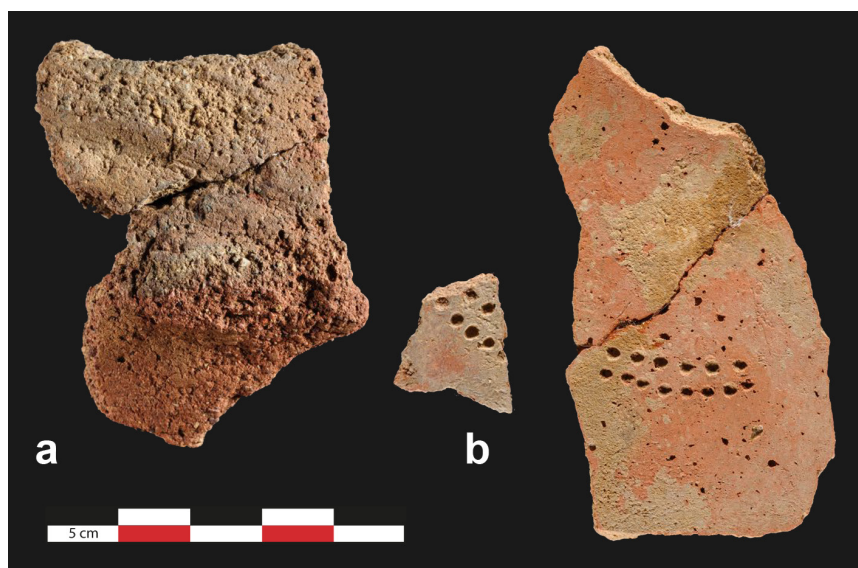


Fig. 20. Pottery sherds from the destruction layer *locus* 42005 (a. 42005_P01; b. 42005_P02).



Fig. 21. Pottery sherds from the destruction layer *locus* 42008.



Fig. 22. Detailed view of wall *locus* 42003 after the excavation of the internal compartments, towards the south-west.



Fig. 23. Detailed view of wall *locus* 42007 after the excavation of the internal compartments, towards the south-west.



Fig. 24. Detailed view of one of the compartments (*locus* 42012) of wall 42003.



Fig. 25. Detailed view of one of the compartments (*locus* 42020) of wall 42007.

Fig. 26. Shell beads from the compartment *locus* 42012
(a. 42013_Sh01; b. 42013_Sh02).



Fig. 27. Shell beads from the compartment *locus* 42014.

Fig. 28. Shell beads from the compartment *locus* 42022.





Fig. 29. General view of the cairn complex F19 (*loci* 42000) at the end of the excavation, towards the east.

Restoration Work in the Residential Area

Ibrahim AS-SABHAN (Masmak Museum)

During the 2014 season, the restoration work was divided into three parts:

- 1/ preparation of the mud mortar with which the bricks are made and which is also used to make the joints between them in the restored structures;
- 2/ restoration of various structures around and on top of IGN 132;
- 3/ filling of the deep soundings of previously excavated Area 9.

PREAMBLE

The first restoration work in the Residential Area of Madâ'in Sâlih started in 2010, when the first bricks were made, experimenting the use, as temper, of a chemical product ('Fos Fiber P1') instead of straw (see the 2011 report, Introduction, figs 13.1–13.17). This temper prevents the bricks and the mortar from cracking and since the bricks obtained were solid and had a very good general aspect, we went on using it. Once the other aspects of the recipe were finalised (proportion of clay, sand and water), several hundred mudbricks were made. The restoration of the ancient walls which had been put to light during the excavations was first undertaken in 2012 and was very successful. No big damage affected them since then.

RESTORATION WORKS IN 2014

In 2014, the work started, as usual, with the preparation of the mud mortar, following the now well established recipe. When the mortar became ready, we first turned to Area 2, on the restoration of which we had been concentrating since 2012 and which needed little effort to be finished. Five more walls were restored: four in mudbrick and one 5.30 m long stone wall. Stones of different shapes and sizes, taken from the area around the site, were used to restore the latter. After restoration, the wall was 90 cm wide and between 23 and 38 cm high. The restoration of Area 2 is now completed.

After Area 2, we moved to IGN132, west of which, at the foot of the outcrop, the base of two pillars, which are probably the remains of the original monumental access to the top, needed some consolidation. One course of stones assembled with mortar was laid above the partly preserved two courses of the original pillars. After restoration, the dimensions of each base reached 90 x 90 cm and 23–24 cm high.

Before moving to the top of the outcrop, we decided, in agreement with the directors of the project, to build a mudbrick staircase in the exact place where the Nabataean staircase giving access to the sanctuary on top was originally built (**fig. 1**). This was necessary for safety reasons and because otherwise it would not have been impossible to carry the building material up to the top of the outcrop for the following steps of the restoration.

After the staircase, which fits perfectly well in the landscape, we moved to the top of IGN 132, where the remains of a stone pavement, built under what was interpreted as a *tetrapylon*, had been put to light in 2011 (**fig. 2**). In agreement with the archaeologist in charge of this excavation area, L. Nehmé, it was decided to use mudbricks – and not stone slabs – to restore the pavement. The reason is twofold: 1/ no stone slabs were available on the site, and even if there had been some, it would have been difficult to carry them up to the top; 2/ the use of mudbricks makes it easier to distinguish the original pavement from the restoration. The

negative of the four columns which formed the *tetrapylon* (diameter 60 cm) were filled with fragments of bricks mixed with mortar and they were made high enough (20–25 cm) to make any visitor understand that these were originally columns (**fig. 3**).

The restoration on top of IGN 132 also included the restoration of the stone wall which formed an enclosure around the edge of the outcrop. Only part of the northern section of the wall, where it was best preserved (3.42 m long) was consolidated and restored (**fig. 4**). The stones were taken from the stones found from the excavations and were between 19 to 25 cm thick and 50 to 64 cm long.

Finally, we moved to Area 9, where a deep sounding (4 x 4 m and 3.5 m deep), which had become dangerous and the structures of which were subject to collapse, was filled with sand (**fig. 5**). Moreover, three mudbrick walls, the foundation of a stone wall and a stone threshold were restored.



Fig. 1. Building of a staircase to give access to the top of IGN 132.



Fig. 2. Cleaning of the platform on top of IGN 132 before restoration. The empty spaces were filled with mudbricks.



Fig. 3. The platform on top of IGN 132 after restoration. Note the four columns which were originally part of the *tetrapylon*.



Fig. 4. Restoration of the northern wall of the enclosure surrounding the top of IGN 132.



Fig. 5. Area 9 after the filling of the deep sounding with sand.

Pottery Report

Caroline DURAND (Ifpo Amman) and Yvonne GERBER (Basel University)

The 2014 pottery study season took place between January 24th and February 16th. First, some of the pottery from Areas 32000 and 41000, which had been left over from the 2011 season, was recorded. Then the pottery from the 2014 season was partly recorded, priority being given to the important *loci* as defined by the excavators.

THE RESIDENTIAL AREA (see W. Abu-Azizeh's report in this volume)

A particular attention was given this year to the pottery coming from the cairns. Among the finds from the surveys undertaken in 2011 (Area 41000), two distinctive groups have been distinguished. The first group is characterised both by the presence of imported amphorae and black glazed sherds and by the smooth whitish-beige fabric (reference fabric no. 41) which is widespread in the lower pre-Nabataean layers in the Residential Area. The latter can be dated at the latest to the Hellenistic period or to the immediate pre-Hellenistic one. The second group of pottery is characterised by a reddish and gritty fabric. The main profiles are small pots with inverted wall, neckless or with a short everted rim, sometimes with an incised or impressed decoration of dots and clay strips.¹ These assemblages find exact parallels in Rujûm Sa'sa', near Taymâ'.² Some of these closed pots also show impressed traces of ropes or basket on the exterior of their flat base (**fig. 1**).

One of the cairns identified in 2011 was excavated in 2014 (Area 42000, cairn F19) and the pottery material was studied. The pottery belongs mainly to the second group (*loci* 42001, 42005, 42006, 42008) and presents the same small jars with reddish gritty fabric and characteristic decoration patterns. Two flat bases of closed forms with impressed traces of ropes or basket on the exterior were also found (42001_P03, **fig. 2**; 42005_P01). Since a precise dating for this pottery is still lacking, twenty sherds coming from a small jar with reddish fabric (42008_P01; **fig. 2**) have been isolated for thermo-luminescence analysis in order to obtain a chronological indication.

THE TOMBS (see N. Delhotal's report in this volume)

Tomb IGN 103 (*loci* 50400–50409) yielded only six pottery sherds. These are mixed: Nabataean, one imported – probably Hellenistic – amphora handle (50409_P02) and a pilgrim flask fragment with a greenish fabric which could be dated to the Late-Roman/Byzantine period (50409_P01).

On the contrary, the pottery coming from tomb IGN 88 (*loci* 50419–50423) seems homogeneous and can be dated to the 1st century AD, i.e. to the main Nabataean period. It comprises imported Nabataean painted fine ware from Petra (phase Schmid 3a; 50421_P04, **fig. 3**),³ a local everted bowl, and at least two almost complete bowls made with the local (?) fine fabric and the 'two red lines' pattern (50432_P02 & P03; **fig. 4**).⁴

1. See ABU-AZIZEH 2011 and DURAND 2011: 334.

2. AL-HAJIRI *et alii* 2002: pl. 3.8A.

3. SCHMID 2000: pl. 2.5.

4. DURAND & GERBER 2014: 159–161, fig. 7.

THE RESIDENTIAL AREA

The city-wall (see F. Villeneuve's report in this volume)

Excavations continued in the Area 35, around the South-Eastern gate of the rampart. The material from this area is scarce and yielded only few diagnostics. The pottery from the backfills inside the southern tower (*loci* 35026, 35055, 35056) is mixed and runs from the Late Hellenistic to the Late Roman period. *Locus* 35057, interpreted as a floor inside this tower, contained only a few body sherds which could be dated to the Nabataean/Roman period. The pottery from the passage between the two towers (*loci* 35027–35028) can be dated to Nabataean and Roman periods (1st–2nd centuries AD).

Area 60700 (see L. Nehmé's report in this volume)

The excavations continued east of the sanctuary IGN 132, under the large stone basins previously discovered.⁵ The pottery from the floor layers located under the basins (*loci* 60711 & 60715) can be dated to the last occupation phase of the site (Late Byzantine to Early Islamic period). As can be expected, the pottery from the backfills located under these floors (*loci* 60719, 60722, 60729, 60732, 60734, 60735 & 60738) mix Nabataean productions and later elements. It confirms that these basins belong to a late reorganisation phase. Despite the presence of a few residual elements, the large amount of pottery found in a nearby dump (*loci* 60713, 60744, 60753, 60754) can also be dated to the last occupation phase of the site.

On the summit of IGN 132, the small amount of pottery from the backfill of the paving (*locus* 60739) can be dated to the Nabataean period, 1st century AD (probably early 1st century AD).

63000

Excavations were also undertaken immediately below the southern flank of IGN 132. This area yielded a small amount of pottery, with only a few diagnostics. In the upper levels, the destruction (*loci* 63018, 63019, 63023) and the floors lying under it (*loci* 63022, 63028, 63031, 63033, 63036 and 63037) show a mixed assemblage of Nabataean and Byzantine pottery. The lower layers (*loci* 63038 and 63040), based on a few sherds only, seem to be dated to the 1st century AD.

Area 9 (see J. Rohmer's report in this volume)

In Area 9, the excavations which had started in 2010 continued with the opening of a new trench (92000). The 2014 season focused mainly on the upper occupation level, which can be dated to the Late Byzantine/Early Islamic period, sometimes mixed with residual elements from the Nabataean period. Most of the pottery belongs to the common ware repertoire and probably reflects the domestic nature of the buildings (**fig. 5**): many cooking-pots (92005_P05* [a * means that the pot is illustrated on fig. 5], 92008_P01, 92012_P01*), casseroles (92032_P02*), lids (92008_P02*, 92013_P04, 92015_P03, 92032_P01*), jars (92005_P03*, 92005_P04, 92009_P01*) and *pithoi*/storage jars (92006_P01, 92013_P01*, 92015_P01), sometimes decorated by rows of horizontal and/or wavy lines.⁶ *Locus* 92005 was interpreted as a dump and shows a mixed pottery assemblage which runs from the Nabataean to the Late Roman/Byzantine period. *Locus* 92029 corresponds to a fireplace. It contained mainly carinated cooking-pots (92029_P01*) blackened by the fire, which belonged to the last occupation phase of the site (Byzantine to Early Islamic period).

During the last days of the season, an earlier occupation phase has been reached (*locus* 92049). In the current state of research, it can be dated to the Roman/Late Roman period, on the basis of the absence

5. See NEHMÉ 2011.

6. On the late phase in the Residential Area, see also GERBER & DURAND 2009: 284–286, figs 54–69.

of clear 'late' elements and of the presence of an almost complete moulded lamp. This lamp shows a *symplegma* scene (**fig. 6**) common in the Roman iconography. Exact parallels can be found in Petra on lamps dated to the 1st century AD.⁷ Nevertheless, the profile of this lamp corresponds to later types dated to the 2nd–3rd centuries AD.

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7. GRAWEHR 2006: no. 67–70, p. 286–287.



Fig. 1. Flat base of pot with reddish and gritty fabric (41002_P02) showing impressed traces of ropes or basket.

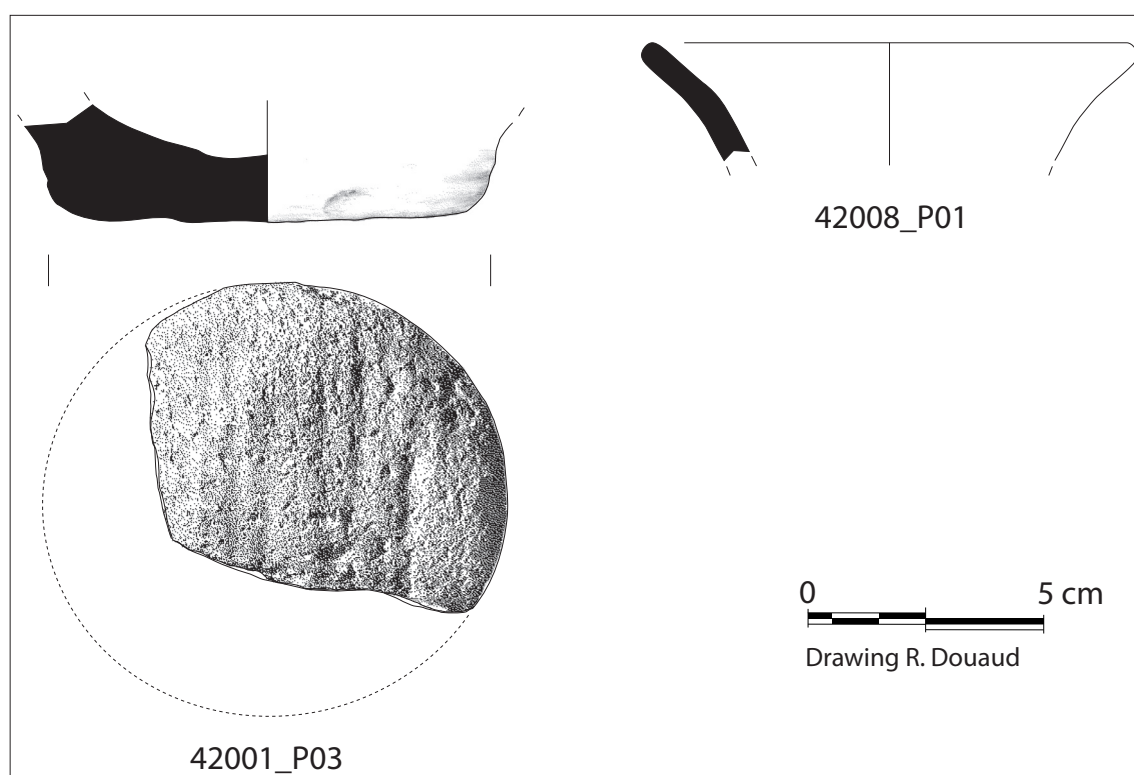


Fig. 2. Pottery samples from Area 42000.

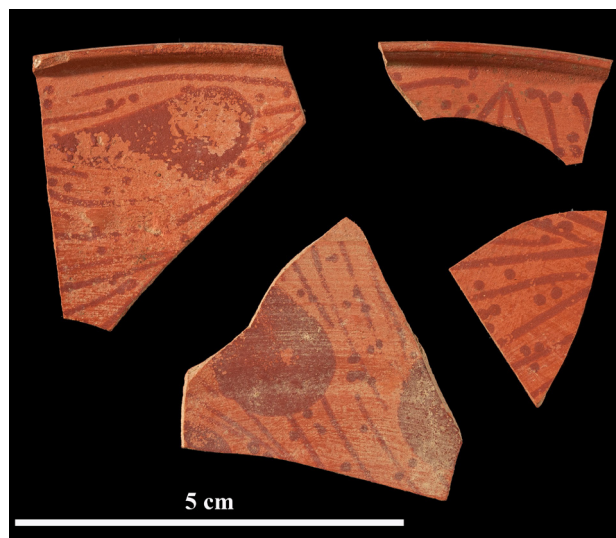


Fig. 3. Imported Nabataean fine ware from Petra, phase Schmid 3a (50421_P04).

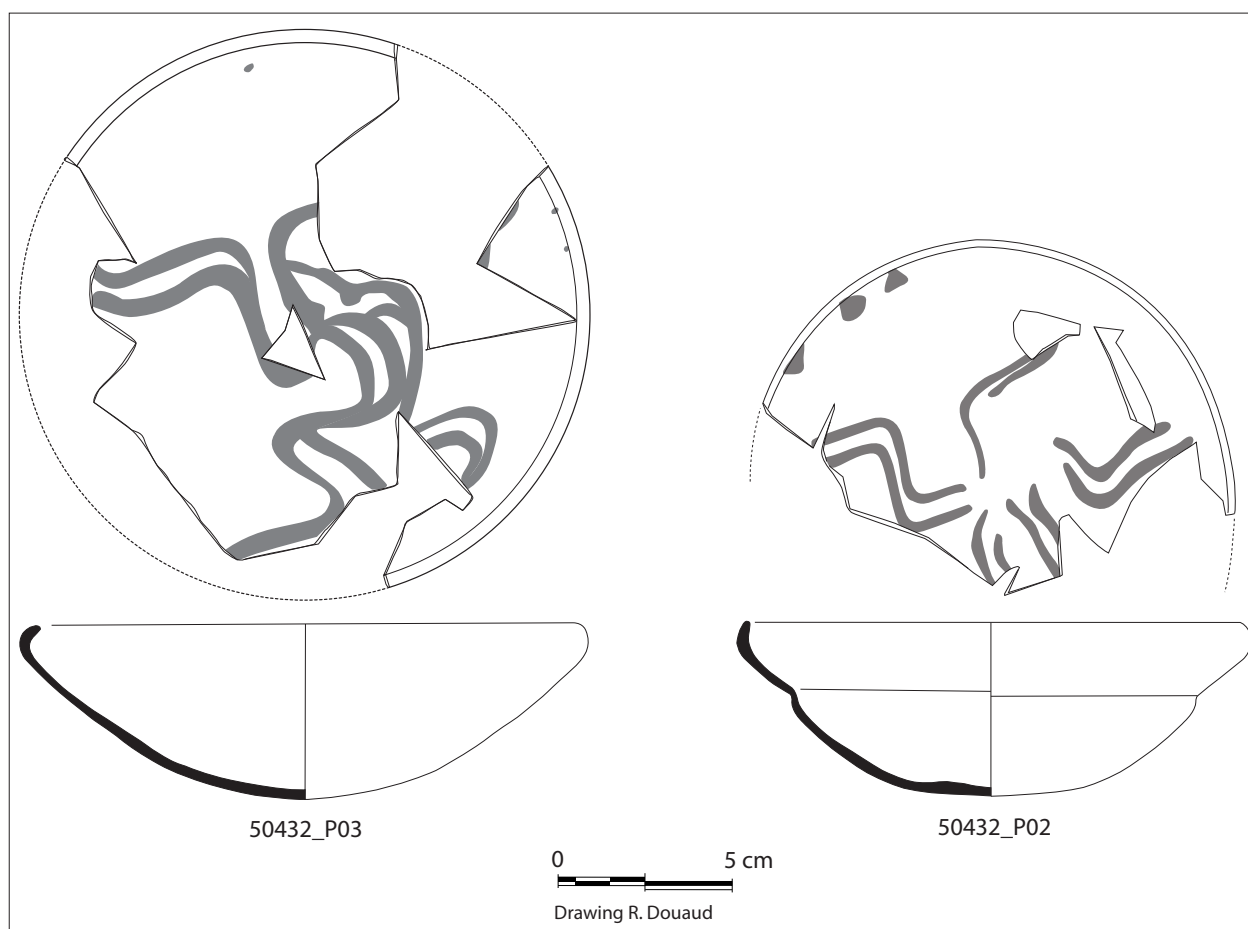


Fig. 4. Nabataean local (?) bowls, 'two red lines'.

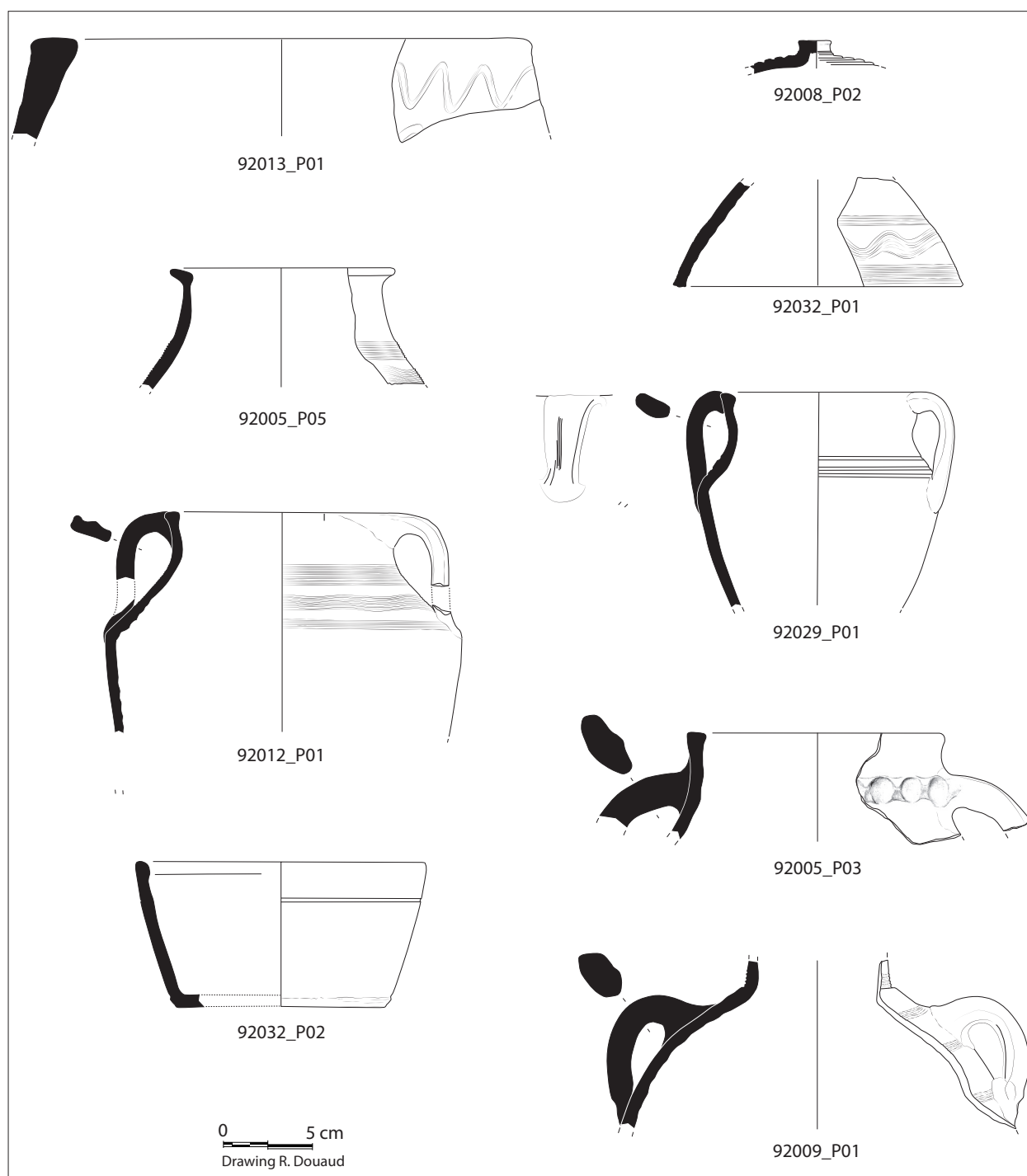


Fig. 5. Pottery samples from Area 92000, Late Byzantine / Early Islamic period.



Fig. 6. Roman lamp showing a *symplegma* scene (92049_P01).

Marine Molluscs

Jacqueline STUDER and Emmanuel TARDY
(Muséum d'histoire naturelle, Geneva)

This is the first presentation of the malacological fauna exploited by the inhabitants of the ancient city of Hegra which was occupied during the Hellenistic, Nabataean, Roman, and post-Roman periods, as well as by pre-Hellenistic populations who buried their dead on top of the Jabal al-Khraymât and Qasr as-Sâni'. This report focuses on the identification of marine molluscs that was undertaken during the 2014 excavation season, though the molluscs derive from collections made in previous seasons as well.¹ The shells described here do not include the dozens of freshwater and terrestrial snails recovered at the site which are probably of local origin.²

METHODOLOGY

Identification of marine molluscs was undertaken in the field with reference to the work of D. SHARABATI (1984) and the Internet site www.gastropods.com. Some twenty specimens, which could not be identified in the field, were studied using the malacological collection at the *Muséum d'histoire naturelle* in Geneva and by consulting complementary bibliographical sources, also used to identify the origin of species.³ Finally, all identifications were taxonomically updated with the World Register of Marine Species website (WoRMS) in August 2014 (www.marinespecies.org).

The studied shell remains are often too fragmented or damaged to enable a secure identification of the species. Where there is uncertainty, the shell remains are attributed to a family, genus, or species using the abbreviation 'cf.' (*confer*, in the sense of 'probable'), for example, cf. Marginellidae or *Conus* cf. *virgo*, which is reflected in the malacological spectrum tables (figs 1–2). These doubts have been ignored in our interpretative analysis in order to obtain a more substantial corpus. Consequently, the discussion of the origin of the species and their use includes both the specimens determined to species with certainty and those with tentative identifications (fig. 3).

OVERVIEW OF THE SHELL ASSEMBLAGE

Figure 1 shows the distribution of molluscs by excavation area. Areas 1, 2, 3, 6, 7, 8, and 9 were excavated in the Residential Area and cover different occupation phases. Area 5 groups together several Nabataean tombs carved in the cliffs around the Residential Area. Finally, Area 4 includes cairns identified or excavated at the top of the massifs in the western part of the site.

1. Previous reports do not include shell remains (STUDER 2011, 2014).

2. Analysis of terrestrial and freshwater invertebrates, those of local origin in the first instance, should provide clues as to the sedimentation history of the soils and/or past geography of the site. In a previous report, Eric Fouache (2014) noted the presence of *Melanoides tuberculata* at the bottom of a trench. The ecological needs of this aquatic snail, which can only live in shallow perennial ponds, enabled the author to conclude that an ancient channel, as well as a higher water table, existed well before the foundation of the city.

3. ABBOTT & DANCE 1982; BOSCH & BOSCH 1989; LORENZ & HUBERT 1993; BOSCH *et alii* 1995; HASAN 1996; ROA-QUIAOIT 2005; HUBER 2010; Internet sites: www.iobis.org; www.marinespecies.org

The malacological assemblage studied consists of 286 whole or fragmented shells, including both isolated remains totalling 133 items and sets of shells found *in situ* in burial contexts (153 samples). Isolated pieces, fragmented in 66% of cases (n=88 items), were recovered in Areas 1, 2, 3, 6, 7, 8, and 9. The majority of shells associated with inhumations come from the cairns in Area 4 (n=110). Some of the latter remains were badly damaged owing to poor conditions of preservation aggravated by exposure to the sun and erosion, while one group of eighty-three beads was well preserved. Ideal conditions of preservation also led to the discovery of intact beads in a Nabataean burial context in Area 5.

The malacological spectrum, represented by remains from all areas, comprises nineteen families, most of which only represented by a few shells (**fig. 1**). Only tusk shells (Dentaliidae, n=46), cowries (Cypraeidae, n=57), olive shells (Olividae, n=43), and cone shells (Conidae, n=52) were found in relatively large quantities, representing four fifths of the pieces identified from the site. The diversity, quantity, and preservation of the specimens vary depending on the archaeological context and the chronological period. As the dating of the *loci* has not been completed for all areas, we limit ourselves to a brief outline of the general malacological character of finds from the cairns (Area 4) and tombs (Area 5), and to an analysis of the chronological distribution of the malacological spectra for Area 1, which is the richest and best documented in the Residential Area (**fig. 2**).

THE CAIRNS (AREA 4)

A total of 110 shells, associated with burial structures of various shapes, were collected during several seasons of survey and excavation in the areas of Jabal al-Khraymât and Qasr as-Sânî'.⁴ The chronology of these cairns, which line the crest of the sandstone massifs, is not yet precisely known (¹⁴C and thermoluminescence analyses are currently ongoing), but they probably belong to one or several of the pre-Hellenistic or Hellenistic period(s).⁵ This malacological assemblage is the largest recovered to date at the site (**fig. 1**, Area 4), although this number includes an assortment of eighty-three beads found in one structure (*locus* 42023_Sh01). This set comprises at least forty-six tusk shells (Dentaliidae), a few cone shells (Conidae), dove shells (Columbellidae), and ceriths (Cerithiidae), all of which are intentionally perforated (**fig. 4**). The largest shells do not exceed 11 cm in length (a few tusk shells) or height (one cerith), while the smallest barely reach 2.5 cm in length. This collection of shells forms the elements of one or more sets of ornaments buried with the deceased. Similarly, the molluscs collected in other burial structures in Area 4 must be considered as personal ornaments.

Apart from two complete molluscs found in *locus* 42201, the shells are badly damaged as a result of poor preservation and are fragmentary and often cracked by natural erosion. Identical traces of fashioning (perforation, shining, polishing, etc.) or wear (rubbing from a binding, clothing, etc.) are nevertheless visible on at least sixteen fragments (except for the two complete pendants in *locus* 42201), thus forming a homogeneous and coherent whole (**fig. 5a**). These fragments are represented by only one type of cone shell, the vexillum cone (*Conus vexillum*), probably the sub-species *sumatrensis* that is characterised by a pattern of roughly parallel broken longitudinal lines (**fig. 5b**). The sub-species *C. vexillum sumatrensis* is not accepted by WoRMS as a distinct sub-species of *C. vexillum*, but as it exhibits a typical and easily recognisable pattern, it was decided to keep this designation.

With the exception of the panther cowrie (*Cypraea pantherina*) and the cone shell *Conus taeniatus*, which were also found in the Residential Area, the other mollusc species identified in the cairns were not found in any other location at Hegra (see **fig. 1**).

4. ABU-AZIZEH 2011 and in this report.

5. DURAND 2011 and in this report.

THE RESIDENTIAL AREA (AREAS 1, 2, 3, 6, 7, 8, 9) AND THE TOMBS (AREA 5)

The marine shells present in the occupation levels of the ancient city are largely dominated by gastropods, principally cowries (Cypraeidae), olive shells (Olividae), and cone shells (Conidae). Other groups of gastropods, represented by nine families, are attested to by rare examples of top snails (Trochidae), true conches (Strombidae), murex snails (Muricidae), true whelks (Buccinidae), margin shells (Marginellidae), small snails (Fascioliariidae, Costellariidae, Planaxidae) and triton shells (Ranellidae). The bivalves are represented by four families: ark clams (Arcidae), pearl oysters (Pteriidae), giant clams (Tridacnidae), and large clams (Lucinidae). The following descriptions are limited to the three most common families found in the Residential Area, i.e. Cypraeidae, Olividae and Conidae.

Cowries are the most abundant, with fifty-six fragments found (representing five different species), and are also the most widely distributed across the site and over several chronological periods (fig. 2: Hellenistic, Nabataean, and post-Roman periods, and even pre-Hellenistic, see above). The smallest of them, *Monetaria annulus*, is also the most common (n=35 from the Residential Area only, fig. 1). In order to fashion the cowries into beads, the dorsal face of the shell was removed and the chipped edges of the fractured surface show occasional traces of polishing (fig. 6). It could thus be easily strung onto a binding or fixed onto a flexible or rigid support. Such beads are widely distributed in the Near East and the most ancient go back as far as the Natufian period, perhaps even earlier.⁶ The five *Monetaria annulus* found intact possibly represent a supply of raw material or were utilised in other ways (e.g. unmodified ornaments or game pieces). Another species of cowrie, *Erosaria turdus*, modified in the same way as the majority of *Monetaria annulus*, was also utilised to make beads. It is a slightly larger species than *M. annulus* (archaeological samples measure 34 and 38 mm in length vs. 17–22 mm). Other species of Cypraeidae are distinguished by their large size and the absence of anthropic marks. The most frequent is the panther cowrie, *Cypraea pantherina*, with one complete example and nine fragments found (fig. 7). The largest fragment comes from an individual shell measuring 85 mm long. Although the panther cowrie is a potential source of protein, it is not very abundant and thus represents a rare food resource; its primary use at Hegra was therefore probably decorative.

A total of forty-three Olividae were found. Two olive shells were discovered in the Residential Area, of which one derives from a post-Roman layer. The greatest abundance of this group is linked to the discovery of a collection of forty-one items grouped together in a Nabataean tomb, several of which were still attached to fragments of textile (50421_Sh01, IGN 88, see figs 24–25 in Delhopital's contribution in this volume). These small white shells measure a maximum of 12 mm long; they had all been fashioned into beads (by removal of the back and occasional polishing).

The Conidae, of which there are twenty-four remains, represent the largest quantity of identified species: *Conus coronatus*, *C. frigidus*, *C. locumtenens*, *C. parvatus*, *C. rattus*, *C. taeniatus*, and *C. virgo* (figs 1, 2, and 8). The twenty-two complete shells had all been perforated, generally by polishing of the apex. It should be noted that cone shells are not edible.

ORIGIN OF THE MOLLUSCS

All the taxa identified originate from the Indo-Pacific basin and the majority are relatively widely distributed. Figure 3 shows their natural distribution limited by the Red Sea and the Arabian Gulf, the two closest maritime coasts to Madâ'in Sâlih. According to surveys by A. K. HASAN (1996) and D. T. BOSCH *et alii* (1995), of the twenty-seven mollusc species identified, twenty are recorded in the Arabian Gulf. By contrast, they are all registered as living in the Red Sea.⁷ Thus, based on their biogeography, at least the following seven molluscs that do not occur in the Arabian Gulf could only have come from the Red Sea:

6. MIENIS 2010.

7. LORENZ & HUBERT 1993; ABBOTT & DANCE 1982; WoRMS.

the panther cowrie *Cypraea pantherina* found in the cairns and the ancient city (Hellenistic and Nabataean periods), *Filifusus filamentosus*, from a layer dated to the Hellenistic period, *Tectus virgatus*, found in a post-Roman layer, as well as four other still undated species, namely *Charonia* sp., *Conus locumtenens*, *Conus frigidus*, and the fluted giant clam *Tridacna squamosa*.

DISCUSSION AND CONCLUSION

Although located more than 150 km from the nearest maritime coast, marine shells at Madâ'in Sâlih were recovered from all the major chronological periods identified on the site: pre-Hellenistic, Hellenistic, Nabataean, Roman, and post-Roman.

The malacological assemblage studied comprises 286 remains composed of indeterminate scaphopods, twenty-eight gastropod taxa, and five bivalve taxa, which all originate from the Indo-Pacific basin. All gastropod species inhabit the Red Sea coasts while twenty also occur in the Arabian Gulf. This favours the idea that there was a more constant flow of shells from the Red Sea. In this regard, it is also important to take into account ichthyofaunal data which indicate the source of fish found at the site, as well as the fact that cultural goods were introduced into the site by caravans passing through Hegra. Ceramic analyses show, for example, that there was a regular trade between Petra and Hegra during the Nabataean period.⁸ It is therefore possible that trade items such as modified marine shells passed through the Nabataean capital during this period.⁹

All the molluscs identified are species that come from the intertidal zone and are fished either directly from the foreshore or by skin-diving in shallow waters. Some are edible species traditionally serving as a protein source (especially giant clams, pearl oysters, and ark clams), but the majority, even though potentially edible, were utilised purely for fashioning jewellery and other types of ornaments, as is still the case today in Africa or Oceania. The species that are edible also have a secondary use as ornamental objects. In view of the distance that separates Madâ'in Sâlih from the Red Sea and the Arabian Gulf, the question regarding the transportation of molluscs for consumption must be posed. While fish can be dried, salted, or pickled, molluscs cannot be preserved in their shells in the same way. These invertebrates are too fragile to be transported alive for several days in the Arabian heat. It is therefore probable that the shells found on site were used *in situ* as a raw material, which appears to be confirmed by the large proportion of perforated specimens, clearly destined for use as personal ornaments. This does not preclude other uses, since some large cowries may have been used as decorative objects and giant clams as vessels.¹⁰

As regards the chronological distribution of the species, in view of the specific way it was fashioned, one can suggest that the *sumatrensis* variety of the vexillum cone, *Conus vexillum*, points to the pre-Hellenistic periods as it is associated only with the cairns. The discovery of this collection of shells provides firm confirmation of the way these shells were utilised. The case of olive shells found associated with fragments of textile proves, once again, that beads are not necessarily only used as pieces of jewellery: when perforated, a shell can also decorate a piece of fabric.¹¹

As can be seen from these preliminary conclusions, the world of invertebrates offers numerous possibilities of study, both from a biological point of view and from the point of view of exploitation either by passing travellers or by the inhabitants of Madâ'in Sâlih at different periods. A comparison of these data with the results from malacological analyses obtained from other archaeological sites in the region is currently in progress.

8. DURAND & GERBER 2014.

9. STUDER 2002, 2007, 2008.

10. See, for example, HAMILTON-DYER 2003; REESE 2013.

11. SCHICK 1988; BAR-YOSEF 1997.

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Madâ'in Sâlih	Areas	Urban center							Funerary context		Total
		Hellenistic to post-Roman							pre-Hell.	Nabat.	
SCAPHOPODA		1	2	3	6	7	8	9	4	5	
Dentaliidae									46		46
Dentaliidae sp.									46		46
GASTROPODA											
Planaxidae			1						1		2
Planaxidae sp.									1		1
cf. <i>Planaxis sulcatus</i> (Born, 1778)			1								1
Trochidae		2									2
<i>Clanculus pharaonius</i> (Linnaeus, 1758)		1									1
<i>Tectus virgatus</i> (Gmelin, 1791)		1									1
Cerithidae									3		3
Cerithidae sp.									3		3
Strombidae		2	1								3
<i>Canarium</i> cf. <i>labiatum</i> (Röding, 1798)		1									1
<i>Conomurex fasciatus</i> (Born, 1778)		1	1								2
Cypraeidae		26	16	4	3	1	3	3	1		57
Cypraeidae sp.		4		3			1				8
<i>Cypraea pantherina</i> Lightfoot, 1786		1	5				1				} 10
<i>Cypraea</i> cf. <i>pantherina</i> Lightfoot, 1786		1	1						1		
<i>Erronea caurica</i> (Linnaeus, 1758)			1								1
<i>Erosaria turdus</i> (Lamarck, 1810)			2								2
<i>Mauritia grayana</i> Schilder, 1930		1									1
<i>Monetaria annulus</i> (Linnaeus, 1758)		19	7	1	3	1	1	3			35
Ranellidae		1									1
<i>Charonia</i> sp.		1									1
Columbellidae									6		6
Columbellidae sp.									4		4
cf. <i>Mitrella albina</i> (Kiener, 1841)									2		2
Muricidae								1			1
<i>Chicoreus ramosus</i> (Linnaeus, 1758)								1			1
Buccinidae		2	1								3
<i>Engina mendicaria</i> (Linnaeus, 1758)		2	1								3
Fasciolaridae		2									2
Fasciolaridae sp.		1									1
<i>Filifusus filamentosus</i> (Röding, 1798)		1									1
cf. Marginellidae			1					2			3
Olividae		1				1				41	43
Olividae sp.		1								41	42
<i>Oliva</i> sp.						1					1
Costellariidae		1									1
<i>Vexillum</i> cf. <i>amabile</i> (Reeve, 1845)		1									1
Conidae		13	4	2	2		2	1	28		52
<i>Conus</i> sp.		7	2		2		2		5		18
<i>Conus</i> cf. <i>coronatus</i> Gmelin, 1791		1									1
<i>Conus</i> cf. <i>frigidus</i> Reeve, 1848				1							1
<i>Conus</i> cf. <i>locumtenens</i> Blumenbach, 1791		1									1
<i>Conus parvatus</i> Walls 1979		1									1
<i>Conus</i> cf. <i>rattus</i> Hwass in Bruguière, 1792				1							1
<i>Conus taeniatus</i> Hwass in Bruguière, 1792		2	1				1				} 5
<i>Conus</i> cf. <i>taeniatus</i> Hwass in Bruguière, 1792								1			
<i>Conus</i> cf. <i>virgo</i> Linnaeus, 1758		1	1								2
<i>Conus vexillum sumatrensis</i> * Hwass in Bruguière 1792									9		} 22
<i>Conus</i> cf. <i>vexillum sumatrensis</i> * Hwass in Bruguière 1792									13		
BIVALVIA											
Arcidae			1								1
<i>Anadara</i> sp.			1								1
Pteriidae		2								1	3
<i>Pinctada</i> sp.		2								1	3
Tridacnidae		3	1							1	5
<i>Tridacna</i> sp.		1								1	2
<i>Tridacna maxima</i> (Röding, 1798)		1	1								2
<i>Tridacna squamosa</i> Lamarck, 1819		1									1
cf. Lucinidae			1								1
Mother of pearl fragment**		11	1				2	1			15
Identified marine molluscs		66	28	6	5	2	7	8	85	43	250
Unidentified marine molluscs		10					1		25		36
Total		76	28	6	5	2	8	8	110	43	286

Pre-Hell. = pre-Hellenistic (cairns); Nabat. = Nabataean.

Fig. 1. The marine molluscs of Madâ'in Sâlih. Number of remains by excavation area. Areas 1, 2, 3, 6, 7, 8, and 9 = Residential Area: Hellenistic, Nabataean, Roman, post-Roman; Area 4 = cairns on Jabal al-Khramât and Qasr as-Sânî', burial context: dating in progress (pre-Hellenistic); Area 5 = Nabataean burial contexts.

* the form *sumatrensis* is not accepted by WoRMS as a distinct sub-species, although it bears a typical pattern which is easily recognisable; ** the fragmented mother-of-pearl has not been identified but may attest to the presence of pearl oysters shells (family Pteriidae).

The different mollusc families are presented in taxonomic order.

Periods Phases	Madâ'in Sâlih, AREA 1						
	Hellenistic			Nabataean		Rom.	post-Rom.
	1	2	1-2	3	4	5	6
GASTROPODA							
Trochidae							2
<i>Clanculus pharaonius</i>							1
<i>Tectus virgatus</i>							1
Strombidae				1			1
<i>Canarium cf. labiatus</i>							1
<i>Conomurex fasciatus</i>				1			1
Cypraeidae	2	10		1	2		6
<i>Cypraeidae</i> sp.				1			2
<i>Cypraea pantherina</i>					1		
<i>Cypraea cf. pantherina</i>		1					
<i>Mauritia grayana</i>		1					
<i>Monetaria annulus</i>	2	8			1		4
Ranellidae							1
<i>Charonia</i> sp.							1
Buccinidae			1				1
<i>Engina mendicaria</i>			1				1
Fasciolaridae		1					1
<i>Fasciolaridae</i> sp.							1
<i>Filifusus filamentosus</i>		1					1
Olividae							1
<i>Olividae</i>							1
Costellariidae							1
<i>Vexillum cf. amabile</i>							1
Conidae	1	2	1			1	5
<i>Conus</i> sp.		2				1	3
<i>Conus cf. coronatus</i>			1				
<i>Conus cf. locumtenens</i>							1
<i>Conus parvatus</i>							1
<i>Conus taeniatus</i>	1						1
<i>Conus cf. virgo</i>							1
BIVALVIA							
Pteriidae							2
<i>Pinctada</i> sp.							2
Tridacnidae		1					1
<i>Tridacna</i> sp.							1
<i>Tridacna maxima</i>		1					1
<i>Tridacna squamosa</i>							1
Mother of pearl		1		2	2	2	4
Unidentified	1	1			2		5
Total	4	16	2	4	6	3	30
							11
							76

Fig. 2. Marine molluscs in Area 1. Number of remains by chronological phase.

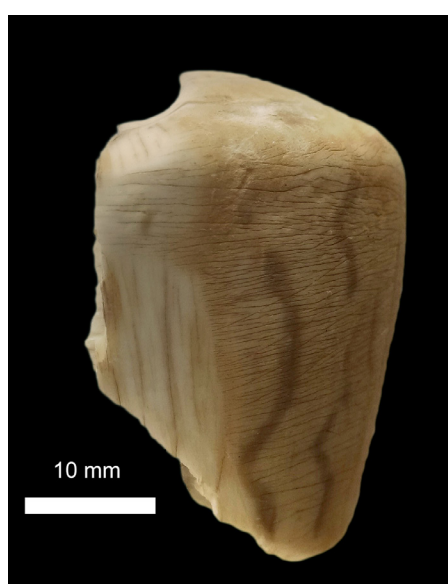
	Red Sea	Arabian Gulf	Period
GASTROPODA			
Planaxidae			
<i>Planaxis sulcatus</i>	X	X	unid.
Trochidae			
<i>Clanculus pharaonius</i>	X	X	pR
<i>Tectus virgatus</i>	X	0	pR
Strombidae			
<i>Canarium labiatus</i>	X	X	pR
<i>Conomurex fasciatus</i>	X	X	N
Cypraeidae			
<i>Cypraea pantherina</i>	X	0	H+N
<i>Erronea caurica</i>	X	X	unid.
<i>Erosaria turdus</i>	X	X	unid.
<i>Mauritia grayana</i>	X	X	H
<i>Monetaria annulus</i>	X	X	H + N + pR
Ranellidae			
<i>Charonia</i> sp.	X	0	N + pR
Muricidae			
<i>Chicoreus ramosus</i>	X	X	unid.
Buccinidae			
<i>Engina mendicaria</i>	X	X	H + pR
Fasciolaridae			
<i>Filifusus filamentosus</i>	X	0	H
Costellariidae			
<i>Vexillum amabile</i>	X	X	pR
Conidae			
<i>Conus coronatus</i>	X	X	H
<i>Conus frigidus</i>	X	0	unid.
<i>Conus locumtenens</i>	X	0	unid.
<i>Conus parvatus</i>	X	X	pR
<i>Conus rattus</i>	X	X	unid.
<i>Conus taeniatus</i>	X	X	H
<i>Conus vexillum sumatrensis</i>	X	X	pH
<i>Conus virgo</i>	X	X	pR
BIVALVIA			
Arcidae			
<i>Anadara</i> sp.	X	X	unid.
Pteriidae			
<i>Pinctada</i> sp.	X	X	pR
Tridacnidae			
<i>Tridacna maxima</i>	X	X	H
<i>Tridacna squamosa</i>	X	0	unid.
TOTAL	27	20	

pH = pre-Hellenistic, H = Hellenistic, N = Nabataean, pR = post-Roman, unid. = unidentified.

Fig. 3. Natural distribution of identified molluscs (Red Sea and Arabian Gulf); X = presence, 0 = absence. All the species found at Madâ'in Sâlih originate from the Indo-Pacific basin. They are all registered in the Red Sea, but five taxa are absent from the Arabian Gulf (shown in bold).



Fig. 4. A group of pearls from a cairn-type structure (42023_Sh01).



a



b

Fig. 5. *Conus vexillum sumatrensis*. a/ an archaeological fragment of shell (locus 42001). The sample bears traces of human modification (perforated apex, polished facets) and the natural pattern is clearly discernible (roughly parallel broken lines). Photograph J. Studer; b/ specimen from the *Muséum d'histoire naturelle* in Geneva, Delessert collection, 77 mm. Photograph E. Tardy.

Fig. 6. A bead from *Monetaria annulus*, dorsal view (locus 90037). The most common species of marine mollusc found in the Residential Area. The back has been removed so that the shell can be used as a bead. Photograph J. Studer.



Fig. 7. Panther cowrie *Cypraea pantherina* (locus 80286). The most abundant of the large cowries was present in the cairns (one fragment) and in the Residential Area (nine fragments and one intact example). Photograph J. Studer.

Fig. 8. A bead from *Conus taeniatus* (locus 21001). Perforated shell (apex). Photograph J. Studer.



Preliminary Report on the Coins

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In the al-'Ulâ Museum are stored the 688 coins found so far in Madâ'in Sâlih. They are either surface coins or coins discovered in archaeological context during the excavations. Thirty-five coins from previous excavations at Madâ'in Sâlih are kept in the National Museum in Riyadh.¹

Many of these coins are very worn and corroded, which often makes their identification hypothetical. They were cleaned either mechanically or through an electrolysis process to rid them of a thick oxidization layer and concretions. Even after cleaning, however, 36% of the total remain illegible and cannot be surely identified. A tentative identification is often possible, but one must remain cautious because different coinages can be struck on the same types of flans, or on older coins which are so worn that they are totally smooth. The preliminary statistics presented here take into account only the 464 coins which have been identified with more or less accuracy. At this stage of the work, it is useless to distinguish between surface finds and coins found in archaeological contexts. Indeed, the surface finds contribute also to providing an overview of the kind of coins which circulated in Hegra at all periods.

Three main categories of coins can be distinguished: the North Arabian, the Nabataean and the Roman coinages. To these should be added two minor categories represented by a smaller number of coins: the Hellenistic and the yet unpublished H/O coinages. It should be noted that no South Arabian coin has yet been identified. The older coins are probably a Hellenistic tetradrachm of the Alexander type (late 4th to 3rd century BC) or a North Arabian silver drachm of the 'owl series' which cannot be dated with precision. The latest ones are two Roman AE3 of Constantius II minted between AD 351 and 360.

		No. of coins
Hellenistic		15
North Arabian		147
Owl Series	129	
'Abiel'?	3	
Other Arabian	15	
Nabataean		196
Obodas III	1	
Malichos I	2	
Aretas IV	157	
Rabbel II	6	
Aretas IV to Rabbel II	24	
Unidentified Nabataean	6	

1. I did not myself examine these thirty-five coins, which are described with photographs in AL-TALHI 2000: 90–96 and pictures p. 285–296.

H/O		12
Roman		94
Before Trajan	7	
Trajan	12	
Hadrian to Tetrarchy	44	
Constantine to Constantius II	24	
Unidentified Roman	7	

HELLENISTIC COINS

Fifteen coins belong to the Hellenistic category, among which:

- two silver tetradrachms of the Alexander type (Head of Herakles clad in lion-skin / Zeus enthroned) (**fig. 1**);



Fig. 1. **90042_C03:** Alexander type tetradrachm, silver 15.79 g. Late 4th–early 3rd century BC; **Surface_C069:** Alexander type tetradrachm, silver 15.1 g. Near-Eastern mint, 2nd–1st century BC.

- at least two Jewish coins (a small prutah of Alexander Jannaeus and an imitative Herodian prutah);
- a small bronze from Arados (Arwad, Syria);
- at least six Ptolemaic bronze coins from Egypt or the Levantine coast, minted in the 3rd and 2nd century BC. Ptolemaic bronze coinage has been circulating in Arabia. It has been found in the oldest archaeological levels in Petra, and there is a Ptolemaic bronze among the few identified coins from Dadan, just south of Hegra.

This Hellenistic coinage, as a whole, encompasses a long period from the late 4th to the late 1st century BC, but it represents a very small proportion of the amount of coins found in Madâ'in Sâlih (3.25% only so far).

NORTH ARABIAN COINS

The Owl series

The Owl series is the second most important series of coins in Madâ'in Sâlih after the Nabataean one. There are one silver coin (the weight and the size of a hemidrachm) and 128 bronze coins of various diameters and weights, all showing a very stylized type derived from the Athenian tetradrachms of the classical period: head of helmeted Athena on the obverse, standing owl with olive-branch, crescent and the letters AΘE on the reverse. On the coins found at Madâ'in Sâlih, the original Greek types have evolved to quasi-abstract types made of lines and dots. Athena's cheek is marked by one or two parallel crescents and, on the reverse, the A of the Greek legend has often disappeared, leaving only the letters ΘE (fig. 2).



Fig. 2. Bronze coins of the Owl series: **Surface_C058**, 23 mm, 6.4 g; **Surface_C047**, 20–22 mm, 12.6 g.

This type of coins has long been known to numismatists as a very rare North Arabian coinage. Most of the previously known examples have been acquired by museums from dealers, and a few have recently been found in the Petra excavations, one of them in an 'early stratified context'.² Another one has recently been found together with a Ptolemaic bronze in the excavations of ancient Dadan, at al-Khurayba.³ Martin Huth notes that the series is roughly localised in North-West Arabia, the 'land of Midian',⁴ and Christian Augé cautiously states that this specific group 'spread all over the Hijâz, at Midian, Teima, and chiefly al-'Ulâ and Madâ'in Sâlih'.⁵ The many examples from Madâ'in Sâlih are all in bronze, except for one which is a silver coin of 2.17g.⁶ Other silver specimens are known from public collections, all of them tetradrachms of 12.99 to 14.56 g.⁷ These silver coins seem to be the oldest examples of this coinage because the original Athenian types have

2. AUGÉ 2013: 132.

3. Personal communication.

4. HUTH 2010: 234.

5. AUGÉ, *loc. cit.*

6. Find 35014_C01.

7. For example SNG ANS 1453, or Huth Collection nr. 39.

not evolved yet to the quasi-abstraction characteristic of many bronze examples. In particular, the Greek letter A of the original legend is still present on the silver coins, but is frequently omitted on the bronze ones. The bronze coins can roughly be distributed into three main modules: large, medium and small, the smallest example being 11 mm in diameter. Their detailed study will be one of the main objectives of the next season. Many of the small examples are struck on bevelled flans with protuberances, pretty much like the bronze coinages of Palestine from the 2nd century BC to the 1st century AD. The 129 examples found at Madâ'in Sâlih obviously mean that this coinage has been the sole current and official coinage of the city before the introduction of the Nabataean coinage at the end of the 1st century BC.

Athenian tetradrachms were massively exported to the Persian Near-East from the second half of the 5th century BC, and various imitations were locally minted, especially in Egypt, but also in all the Middle East, including Arabia. These imitative coinages must be considered in their own context. For Athenian people who first minted these tetradrachms for use in Athens and in the other Greek cities, the types on the obverse and the reverse were an obvious reference to the Greek goddess Athena, and at the same time to the city itself, named Athens. For Egyptians, Philistines, Syrians and Arabs who minted local imitations, the meaning of the types must have been different, and they were probably just a symbol of 'good silver'. This, however, cannot be the only meaning of the North-West Arabian owl coinage found at Madâ'in Sâlih because these types are struck on bronze coins of different modules. They were possibly given a local religious signification. One of the main deities of pre-Islamic Arabia was Allat, assimilated to the Greek goddess Athena in hellenized cities. The crescent on her cheek, an element of the type which is never forgotten by the die engravers, is a frequent religious symbol in the ancient Middle East, and is present on Himyarite and later Axumite pre-Christian coinage. On the reverse, the owl is sometimes so stylised that its body is reduced to a rectangle of dots, on top of which are two large circular eyes, a geometric design which resembles pretty much the Nabataean baetyls of the goddess al-'Uzzâ, with two schematic eyes.

Other probable Arabian coins

Eighteen other medium or small bronze coins with very simple geometric or abstract types were found. Three of them show a large rectangle which may look like the schematic Zeus' torso on the reverse of the Eastern Arabian 'Abiel' coinage. The other fifteen just show dots and lines, sometimes on one side only of the coin.

NABATAEAN COINS

Due to the poor condition of many coins found at Madâ'in Sâlih, only 196 coins from the site can be surely identified as Nabataean. There are probably many others among the 259 unidentified coins, but they cannot be included in the present statistics.

In Madâ'in Sâlih, Nabataean coinage is very scarce before the reign of Aretas IV: only two coins of Malichos I (60–30 BC) and one of Obodas III (30–9 BC) have been identified so far. The overwhelming majority of the Nabataean coins was minted under Aretas IV (9 BC–AD 40), with at least 157 identified coins, plus probably *c.* twenty others of the jugate busts/crossed cornucopiae type, the legend of which is illegible and which can only be attributed to Aretas IV, Malichos II or Rabbel II. No coin of Malichos II has been identified, but there are at least six coins of Rabbel II (AD 70–106). This predominance of the coinage of Aretas IV is a characteristic of Nabataean coinage as a whole: Y. Meshorer noted that 80% of all extant Nabataean coins were minted under Aretas IV.⁸

The 157 coins of Aretas IV (**fig. 3**) are still under examination, but a preliminary chronological distribution can be proposed as follows: of the five silver drachms, two were struck before AD 16 and the three others between AD 16 and 40; of the bronze coins, forty-four belong to the Meshorer 97 type (Standing Aretas on obverse/standing Shaqîlat raising hand on reverse) which is considered to have been minted in AD 16–18 or

8. MESHORER 1975 : 41.

19, and at least thirty to the Meshorer 112–114 type (Jugate busts/crossed cornucopiae) which was minted throughout the second half of Aretas' reign, from AD 16 to 40; the seventy-eight last Aretas IV bronze coins belong to the series dated between 9 BC and AD 16. It is interesting to note that among the Madâ'in Sâlih finds, the eighty coins minted during Aretas' twenty-four first years almost exactly match the seventy-seven ones minted in the following twenty-four years.



Fig. 3. Two coins of Aretas IV. **34000_C10:** Aretas IV, 5–3 BC, 13 mm, 1.47 g (Meshorer 75); **10048_C01:** Aretas IV, AD 16–40, 18–20 mm, 3.0 g (Meshorer 112–114 var.).

The scarcity of early Nabataean coins in Madâ'in Sâlih (before Aretas IV) raises the question of the political status of Hegra before 9 BC. The city is often considered to have been included in the Nabataean kingdom as early as 25 BC, under Obodas III,⁹ on the basis of Strabo's account in his *Geography* (XVI.4.24): εἴτα δι' ἐρήμης ὀλίγα ὑδρεῖα ἐχούσης ὁδὸς μέχρι Ἐγρᾶς κώμης· ἔστι δὲ τῆς Ὀβόδα· κεῖται δ' ἐπὶ θαλάττης: 'the road passes through a desert country, which had only a few watering-places, as far as a village called Egra. It is in the territory of Obodas; and it is situated on the sea'. Egra (one must probably read Hegra) is a *kômè*, a village, but this may not be significant. More significant is the fact that Strabo locates it on the sea shore, and writes that the Roman expedition to Arabia embarked there in order to cross the Red Sea and went back to Egypt after eleven days.

The harbour of 'Egra kômè' mentioned by Strabo which was controlled by the Nabataeans in 25 BC is obviously not Hegra. The hypothesis according to which 'Egra kômè' would have been a coastal settlement used by Hegra merchants as a sea-port is not likely either. The distance between Hegra and the Red Sea is c. 160 km as the crow flies, 250 km if one follows the wadis through the mountains, along a route which first goes through Dadan (al-'Ulâ). Such a sea-port would have provided a direct connection with Egypt and the South-Western Arabian peninsula. However, there is little evidence of a direct trade between Hegra and these regions: very few Egyptian coins have been found so far in Madâ'in Sâlih, and not a single Himyarite or Sabaeen one. In fact, nothing in Madâ'in Sâlih points to the existence of a sea trade at any period. The

9. The context of Strabo's account of Arabian routes is the Roman expedition to Arabia Felix led by the prefect of Egypt Aelius Gallus in 25–24 BC, with the help of Syllaeus, minister of the Nabataean king Obodas III (30–9 BC).

relation between the ‘Egra kômè’ of Strabo and our Hegra is more probably just homonymy, both names deriving from an Arabic term which may mean ‘the rocky place’.

The first mention of Hegra in the classical literature may be Pliny (*Natural History* VI.32.156). He mentions Hegra, along with Domata (Dûmat al-Jandal/al-Jawf) among the oases of the North-West Arabian peninsula, but he says nothing of their political status. He also mentions an ‘Agra’ which is the ‘*regia*’, ‘royal capital’, of the ‘*Laeanitae*’. Pliny relies on various sources, mainly Greek ones, and the Latin form ‘Agra’ may be a transcription of Greek, which has no letter for H. The ‘*Laeanitae*’ may very well be a Latin deformation, through the Greek script, of *Liḥyan*, and this would mean that the hypothetical Greek source used by Pliny stated that Hegra was the royal capital of the Liḥyanites. We know, of course, that it was not the case when Pliny was writing, but anachronisms are common in Ancient geographical literature, especially when dealing with distant and exotic countries. Pliny had no personal knowledge of Arabia, and relied on the various documents, written at different periods, he could find in libraries.

The numismatic evidence available so far suggests that Nabataean coinage started to be used in Hegra on a regular basis only under Aretas IV and not before. This is supported by the epigraphic evidence since the oldest dated Nabataean inscription in Madâ’in Sâlih is dated 1 BC/AD 1, a few years after the beginning of Aretas IV’s reign.¹⁰

THE H/O COINS (FIG. 4)

Twelve coins, struck (or, for some examples, cast?) on flans of various aspects and sizes, bear on one side a large H-shaped symbol, and on the other side a large O. This particular coinage was never found elsewhere than in Madâ’in Sâlih. The symbols seem identical to the Nabataean monograms H and O visible on several Aretas IV coins (Meshorer 76, 93 for example).¹¹ Y. Meshorer suggested the O was the mark of the Petra mint.¹² It is probably not the case for our H/O series, known only in Hegra. This unpublished coinage is still to be studied.



Fig. 4. Two examples of the H/O series: **10000_C01**, 15–17 mm, 3.3 g; **32000_C02**, 17–19 mm, 5.74 g.

10. JAUSSEN & SAVIGNAC 1909–1922: vol. 1, Nabataean inscription no. 16.

11 See also HOOVER & BARKAY 2010, p. 203 and pl. 18 n° 39-40.

12. MESHORER 1975: 20.

THE ROMAN COINS

Ninety-four coins identified as Roman were found so far. The earliest ones are four bronze coins of Otho (a middle bronze from Antioch, AD 68–69), Vespasian or Titus (an as) and Domitian (a dupondius and an as). All of them seem to have much circulated and have probably been lost decades after their minting. Unsurprisingly, Trajanic coinage is more abundant: one sestertius from Rome (with the reverse showing the allegory of Arabia), one large bronze from Antioch (**fig. 5**), and ten drachms with Greek legends bearing also the allegory of Arabia. These drachms were minted massively in the first years of the provincial era, probably in Bostra, in order to replace the silver Nabataean drachms in the new province.



Fig. 5. Surface_C087: Trajan, Antioch mint, AD 98–99, 28 mm, 11.8 g. (Waagé Antioch IV 2, 390–399).

There are also seventeen large and middle bronze coins completely or almost completely smooth, several of which are countermarked with a male bust in a circular or oval punch (**fig. 6**). The flans are former bronze coins from Rome (one of them was a dupondius of Augustus), and probably also large provincial bronzes. Similar smooth and countermarked coins were found on Jordanian sites together with Trajanic Arabian drachms and Roman SC bronze coins of the late 1st and early 2nd centuries. They were probably a kind of emergency coinage used in Arabia during the first decades of the provincial era, before local city-mints started to produce middle and large bronze coinage in the second half of the 2nd century AD.



Fig. 6. 10223_C02: Countermarked coin, 27 mm, 6.62 g.

The first decade of the provincial era is relatively well represented among the corpus of the Madâ'in Sâlih coins. The situation is different in the following decades, under the Antonine emperors. Only one fourrée denarius can be attributed to Marcus Aurelius or Lucius Verus, *c.* AD 160. There also very few coins of the Severan era (193–235): only three city-coins of Septimius Severus, Caracalla or Elagabalus and Severus Alexander, and one fourrée denarius of Severus Alexander were identified. The scarcity of Roman coins minted between AD 150 and 250 should be stressed upon, because this period corresponds to the highest activity of local city mints in Arabia as well as in Syria and Palestine. Under Elagabalus, for example, every city of Arabia minted its own city coinage, but none of these Arabian city-coins was identified in Madâ'in Sâlih. Under Severus Alexander (AD 222–235), all city-mints were closed and all provincial coin production was concentrated in the capital, Bostra, where a very abundant bronze coinage, used in

the whole province from Bostra to Petra, was issued. But again, none of these Bostra coins, which are so common further north, was identified in Madâ'in Sâlih.

Only ten to fourteen bronze provincial or city-coins, probably minted between 150 and 250, were found so far, but all of them are so worn and corroded that precise attribution is nearly impossible. Two of them may come from Neapolis in Palestine, another one has a tetrastyle temple on the reverse, a common monetary type figured on a dozen city coinages from Palestine and Arabia in the early 3rd century AD. The other ones can only be identified as city-coins thanks to the Greek letters which are still visible on them, or just from their general aspect.

Roman coins are found in more significant numbers during what may be called the last century of Hegra, that is to say from AD 250 to *c.* 360, from Trajanus Decius to Constantius II. After Trajanus Decius (represented in Madâ'in Sâlih by a single tetradrachm of Antioch), nearly all of the local city-mints were closed, and the coinage was unified throughout the empire, consisting mostly of billon or silvered copper antoniniani produced by a few imperial mints. A majority of those circulating in the oriental provinces were minted in Antioch. In Madâ'in Sâlih, this coinage is scarce: there are isolated examples minted under Valerian, Gallienus, Claudius Gothicus (**fig. 7**), Carinus, Maximianus. There are also a few folles minted after the monetary reform of the Tetrarchy in the early 4th century AD.



Fig. 7. Surface_C074: Antoninianus of Claudius Gothicus, Antioch mint, AD 268–270, 20 mm, 3.1 g.

The last fifty years of Hegra are more documented. Twenty-four coins of Licinius, Constantine and his sons were identified, sometimes in relatively good condition: they probably did not circulate a long time before being lost. Coins minted under Constantine came from different mints: Antioch of course, but also Ostia in Italy, Nicomedia and Heraclea near Constantinople, Trier in Germany. These 4th century AD tiny copper coins were minted on a quasi-industrial scale and each of them represented a very small value (**fig. 8**). In Madâ'in Sâlih, they were used and lost during the latest period of occupation of the site. One may therefore expect to find them in relatively large quantities, at least on the surface, but this is not the case: the twenty-four coins from between AD 310 and 360 have to be compared with the 157 identified coins of Aretas IV minted between 9 BC and AD 40.



Fig. 8. 10016_C01: Constantius II Caesar, Antioch mint, AD 335–337, 18 mm, 1.4 g.

The latest identified coins are two AE3 of Constantius II, from a single find-spot.¹³ They belong to the ‘fallen horseman series’ with the reverse legend FEL TEMP REPARATIO. One of them is from Antioch. This series is known to have been massively produced in various imperial mints between 351 and 360, most of them being from between 351 and 355. No later coin later than 360 was identified so far at Madâ’in Sâlih. This must be significant since the tiny coins of the Valentinian and Theodosian dynasties are always found in large numbers on sites occupied during the second half of the 4th century AD. The fact that they are completely absent from Madâ’in Sâlih means probably that the site was abandoned or at least quasi-abandoned by c. AD 360. The numismatic data is therefore consistent with the epigraphic data since the latest inscription mentioning Hegra is dated AD 356.¹⁴ The absence in Madâ’in Sâlih of any Byzantine or Umayyad coins does not contradict the literary sources, especially Qur’anic and Sunni ones, in which al-Hijr is mentioned as a completely abandoned ghost-city.¹⁵

Even if we include the few pre-Trajanic examples minted in the 1st century AD, there are only ninety-four Roman coins in Madâ’in Sâlih covering a period of c. 250 years from AD 106 to c. AD 360. This figure should be compared with the 157 coins of Aretas IV, who reigned forty-nine years (9 BC–AD 40). If the number of coins is considered by intervals of 50 years, the average ratio between the reign of Aretas and the Roman period in Hegra is of more than eight to one. This disproportion may be meaningful, but one has to remain cautious when interpreting it. Of course, it could lead us to think that Hegra declined dramatically under Roman rule before being finally abandoned in c. AD 360, and several reasons for this decline may be invoked, among which a shift in the traditional trade-routes, with the development of the Palmyrene caravan-trade with the Persian Gulf and of the Egyptian sea-trade in the Red Sea, bypassing Hegra. But we do not know if long-distance caravan-trade ever played a major role in the development of the city because of the complete absence of South Arabian coins among the Madâ’in Sâlih finds. An alternative hypothesis may be a general decline of monetary economy in the Arabian Peninsula after the 1st century AD. People from the south such as the Himyarites and Qatabanians, who used to mint coins, seem to have stopped to do so in the 2nd century AD. For typological reasons, some very rare Hadramawt bronze coins may be dated of the 2nd or 3rd century but may also be older, and from the late 3rd century to the Islamic period, we know of no more coins minted in Arabia. In the 6th century, when Yathrib (Medina) and Mecca grew in importance, they did not mint coins.

SIGLA

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13. 10016_C04 and C05.

14. A Nabataean inscription (STIEHL 1970) allegedly from Hegra mentioning a *ryš hgr*’ and dated ‘year 251’ which, in the provincial era calendar, corresponds to AD 356.

15. However, in the tenth century, al-Istakhri describes al-Hijr as being a ‘small village’ and al-Muqaddasî as being a small *ḥaṣīnah*, i.e. a small fortified city. The latter also says that al-Hijr was famous for its wells and cultivated fields.

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Conclusion

This report shows the variety of the work undertaken in Madâ'in Sâlih in 2014. Two sites produced particularly interesting results, the South-Eastern gate of the rampart (the general layout, the connection with the curtain walls of the rampart and the chronology of which are now relatively well established), and the cairn complex F19 on top of one of the Jabal al-Khraymât massifs, the plan of which is now clear and the dating of which will hopefully be given by the ¹⁴C dating of the human bones uncovered in one of the compartments. Elsewhere, the work continued and each of the excavation areas, inside and outside the rampart, contributed to increasing our knowledge of the history of the occupation of ancient Hegra and of the burial practices of the Nabataeans. The excavations around IGN 132 have shown that most of the structures which are presently visible are relatively late, possibly 4th-5th centuries AD, and the excavations in the domestic buildings of Area 9 have shown that there seems to be a hiatus in the occupation in the second and third quarter of the 2nd century AD, as had been noticed before in Area 2, suggesting that following a destructive event which occurred in the late first or first half of the century AD – which cannot be related so far with the Roman annexation of the Nabataean kingdom – the structures were rebuilt only some time later.

In 2015, we intend to continue the excavations both in the Residential Area and in the newly discovered funerary chamber, almost certainly Nabataean, which was discovered at the end of the 2014 season on the north-western flank of the Jabal al-Ahmar. In the Residential Area, three excavations areas will be continued or opened. These are: 1/ the South-Eastern gate on the rampart (Area 35), the excavation of which will hopefully be completed; 2/ the area around IGN 132 (Areas 60, 63 and 65, for which a general reflexion, aiming at understanding the articulation of the sanctuary with the residential quarters around it, should be undertaken in order to plan efficiently the work for the following two seasons) and well no. 132, which we would like to empty in order to collect archaeological material dating to the period when it was in use ; 3/ the military camp along the southern part of the rampart, a 70 x 55 m building the excavation of which will start in 2015 under the direction of Z. T. Fiema. Apart from the excavations proper, we hope to undertake an aerial survey of at least parts of the Residential Area with a camera-equipped drone, which would be used experimentally in Madâ'in Sâlih for the first time. The drone would allow both to take photos in view of their photogrammetric restitution and to take photographs of the areas under excavation from above, an alternative to both kite photos and photos taken with the crane made by Yann Gayet with the equipment available in al-'Ulâ (**fig. 1**). Finally, some complementary field reconnaissance is necessary to continue and finish the interpretation of the geophysical survey.

Outside the Residential Area, the only place where the team will work is the newly discovered funerary chamber, IGN 116.1, which will hopefully yield interesting archaeological material and give an idea of the kind of burial which was performed in this kind of structure. Was it the same as in the monumental tombs or different?

At the end of this report, I would like to thank all the members of the team (**fig. 2**) for their dedication to the project and the enthusiasm they always show in their participation to each season. Each one of them, as well as the workmen and the cooks, make it a success year after year.



Fig. 1. The mobile crane made by Yann Gayet to take photographs of the excavations.



Fig. 2. The 2014 Madâ'in Sâlih team. From top to bottom and from left to right: Jean Humbert, Thomas Bauzou, François Villeneuve, Othman, Yann Gayet, Jérôme Rohmer, Laurent Tholbecq, Caroline Durand, Nathalie Delhopital, Khalid Alhaiti, Ibrahim as-Sabhan, Mahmoud al-Hajiri, Jacqueline Studer, Mohammed, Rozenn Douaud, Marie Peillet, Laila Nehmé, Wael Abu-Azizeh, Maher al-Musa and Mutlaq al-Mutlaq.